UNESCO

The Courier

MAY 1985 - 7 French francs

AS
4
.U6
A3

AUG 7 1985

Forty years after

Commemorating the end of World War II

Photo © Bulgarian Permanent Delegation to Unesco

A time to live...

34 Bulgaria

The banner of peace

"To develop the creative talents of young people throughout the world; to encourage the exchange of ideas in the field of education; to help spread knowledge of the cultural heritage and traditions of the nations of the world; to promote a more searching scientific analysis of the pedagogical, professional, social and human problems involved in the full development of children and to increase their creative potential"—these, in brief, writes professor Nikolai Todorov of the Bulgarian Academy of Sciences, are the objectives of the *Banner of Peace* movement. Originating in Bulgaria, this movement has the support of many countries and of several international organizations, including Unesco. One of the highlights of the International Year of the Child, 1979, when the young people of Bulgaria were hosts to 1,300 children from 76 countries, was the inauguration of the Banner of Peace Monument. This consists of a central tower surrounded by two semi-circular walls from which are hung bells sent from many countries each accompanied by an appeal for peace on earth. Above, a group of children photographed at the monument. Another international gathering of children, *Sofia 85*, is to be held this year in the Bulgarian capital.

UNESCO
The Courier
A window open on the world

Editorial

IT is the great virtue of anniversaries that, paradoxically, they are timeless occasions, when present, past and future briefly escape the tyranny of calendar and clock to remind us of their essential unity. Looking back into the past we see the roots of the present; looking forward we see the shadowy outlines of a number of possible futures the choice between which depends upon our present actions.

In this issue of the *Unesco Courier,* which commemorates the fortieth anniversary of the ending of the Second World War, while remembering with awe the heroism and the suffering of its fifty million dead of all nations, our aim is primarily to stress the appalling cultural wounds inflicted in a conflict in which spiritual values were the first to be attacked.

Our second purpose is to draw attention to the grim future that eminent Soviet and US scientists agree we are preparing for the world. In fact, they say, backing up their words with cold scientific evidence, that if a nuclear war were to occur, the world would be plunged into the darkness of "nuclear winter" and we would have no future at all.

Today it is clear that the physical and moral courage that, forty years ago, prevented the world from slipping back into the Dark Ages is no longer enough. As the preamble to Unesco's Constitution declares "... it is in the minds of men that the defences of peace must be constructed..."

Nevertheless, it is proper that we should remember the sacrifice made by men, women and children of many nations four decades ago. Within the limitations of our thirty-six pages it is clearly impossible to compile a complete roll of honour, nor was it our intention to attempt to do so; in evoking one great collective feat of arms, one act of individual courage and endurance, one example of the human spirit withstanding the worst horrors that man is capable of inflicting on man, we pay homage to them all.

Their greatest achievement was to give us hope. They paved the way for the emergence of new nations and preserved the cultural heritage which has made possible new conquests of the human spirit.

Editor in chief: Edouard Glissant

May 1985
38th year

UNIV. of Mich.
AUG 7 1985
Current Serials

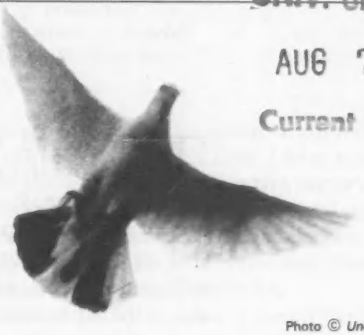


Photo © *Unesco Courier*

4 Peace and human values
by Amadou-Mahtar M'Bow

5 Why war ?
A letter to Sigmund Freud
by Albert Einstein

6 Cultural persecution: the first step towards genocide
by Frederic V. Grunfeld

8 Strange hiding-place
An arms cache in the Lascaux grotto
by André Malraux

10 The art of concealing art
Saving the treasures of the British Museum
by Harold Plenderleith

12 Art under siege
The Hermitage Museum during the 900-day onslaught on Leningrad
by Boris Piotrovsky

13 Can we save civilization?
by Yuri Kirshin

16 The forgotten resistance

18 'The sound and the fury'

20 A time-table for peace
by Gyotsu N. Sato

22 'Emancipation for men and for peoples'

23 Unesco: the birth of an ideal

24 A new hope in the nuclear age
by Lewis Thomas

26 Nuclear winter
The world-wide consequences of nuclear war

32 Unesco and peace research

2 A time to live...
BULGARIA: *The banner of peace*

Published monthly in **31 languages** by Unesco, The United Nations Educational, Scientific and Cultural Organization 7, Place de Fontenoy, 75700 Paris.

English **French** **Spanish** **Russian** **German** **Arabic** **Japanese** **Italian** **Hindi** **Tamil** **Hebrew** **Persian** **Dutch** **Portuguese** **Turkish** **Urdu** **Catalan** **Malaysian** **Korean** **Swahili** **Croato-Serb** **Macedonian** **Serbo-Croat** **Slovene** **Chinese** **Bulgarian** **Greek** **Sinhala** **Finnish** **Swedish** **Basque**

A selection in Braille is published quarterly in English, French, Spanish and Korean

ISSN 0041-5278
N° 5 - 1985 - OPI - 85 - 1 - 422 A

Peace and human values

by Amadou-Mahtar M'Bow
• Director-General of Unesco

THE Second World War came to an end in 1945, on 8 May in the European theatre, on 2 September in the Pacific. The war had seen the systematic practice of collective massacres, the destruction of cities on a massive scale, the deportation of entire populations, and the organization of many extermination camps. Precipitated by the will to dominate, its mainspring blind intolerance and prejudice, the war afflicted humanity not only through its toll of flesh and blood but by striking at the source of its deepest beliefs, the most precious elements of the cultures of peoples. The brutal rejection of human values was a characteristic of this world conflict, but so too was the uncompromising defence of such values. It is our duty to honour those who gave their lives to preserve world civilizations and human freedom, and to remind today's generations of their sufferings and sacrifices.

To honour their memory is also to recall the task of reconciliation and reconstruction which began at the end of the war with the foundation of the United Nations and of Unesco. The mission specially entrusted to Unesco has been to reinforce peace between the nations through education, science and culture, by contributing to the establishment of new relationships based on the principles of knowledge, justice and mutual comprehension.

Today more than ever, this mission which Unesco has resolutely endeavoured to accomplish remains imperative.

The image of the world which is increasingly gaining ground in the minds of people everywhere is that of a single and complex expanse in which the sources of friction are proliferating while the means of communication are growing more effective and the reasons for co-operation are becoming explicit.

Never more than today have men felt so capable both of mutual understanding and of mutual destruction. Since 1945, there has been an endless succession of so-called local wars which have caused the deaths of tens of millions of persons. Today the acceleration of the arms race, coupled to the extension of these local conflicts with international ramifications, heighten the danger of a generalized confrontation and threaten the future of mankind to an unprecedented degree.

The gravity of these dangers is beginning to be widely felt and giving greater prominence to the aspiration of all the peoples of the world to a lasting peace, based on respect for the rights of individuals, for the liberty of nations and for justice, and on universal progress.

This is why Unesco, faithful to the principles set forth in its Constitution, is continuing to make a contribution to the development, in its fields of competence, of mutual understanding, tolerance, respect and solidarity between individuals and between peoples, as well as the recognition of their reciprocal rights and duties.

It is incumbent on all of us to work towards a genuine renewal of values, bringing to them the sense of an uninterrupted continuity between the rights of each man, those of each nation and those of the entire human community.

The commemoration of the fortieth anniversary of the end of the Second World War reminds us of this duty and urges us to perform it.

Why war?

A letter from Albert Einstein to Sigmund Freud

The text below is a slightly abridged version of a letter written by Albert Einstein to Sigmund Freud. Under the title Why War ?, *the letter and Freud's reply to it were published in 1933 by the International Institute of Intellectual Co-Operation. They formed part of an international series of open letters, sponsored by the Institute, in which leading intellectuals exchanged ideas on major questions, the most crucial of which was the threat of war.*

Caputh near Potsdam, 30 July, 1932

Dear Professor Freud,

...Is there any way of delivering mankind from the menace of war? It is common knowledge that, with the advance of modern science, this issue has come to mean a matter of life and death for civilization as we know it; nevertheless, for all the zeal displayed, every attempt at its solution has ended in a lamentable breakdown.

I believe, moreover, that those whose duty it is to tackle the problem professionally and practically are growing only too aware of their impotence to deal with it, and have now a very lively desire to learn the views of men who, absorbed in the pursuit of science, can see world-problems in the perspective distance lends. As for me, the normal objective of my thought affords no insight into the dark places of human will and feeling. Thus, in the enquiry now proposed, I can do little more than seek to clarify the question at issue and, clearing the ground of the more obvious solutions, enable you to bring the light of your far-reaching knowledge of man's instinctive life to bear upon the problem...

...As one immune from nationalist bias, I personally see a simple way of dealing with the superficial (i.e. administrative) aspect of the problem: the setting up, by international consent, of a legislative and judicial body to settle every conflict arising between nations. Each nation would undertake to abide by the orders issued by this legislative body, to invoke its decision in every dispute, to accept its judgments unreservedly and to carry out every measure the tribunal deems necessary for the execution of its decrees. But here, at the outset, I come up against a difficulty; a tribunal is a human institution which, in proportion as the power at its disposal is inadequate to enforce its verdicts, is all the more prone to suffer these to be deflected by extrajudicial pressure. This is a fact with which we have to reckon; law and might inevitably go hand in hand, and juridical decisions approach more nearly the ideal justice demanded by the community (in whose name and interests these verdicts are pronounced) in so far as the community has effective power to compel respect of its juridical ideal. But at present we are far from possessing any supranational organization competent to render verdicts of incontestable authority and enforce absolute submission to the execution of its verdicts. Thus I am led to my first axiom: the quest of international security involves the unconditional surrender by every nation, in a certain measure, of its liberty of action, its sovereignty that is to say, and it is clear beyond all doubt that no other road can lead to such security.

The ill-success, despite their obvious sincerity, of all the efforts made during the last decade to reach this goal leaves us no room to doubt that strong psychological factors are at work, which paralyse these efforts. Some of these factors are not far to seek. The craving for power which characterizes the governing class in every nation is hostile to any limitation of the national sovereignty. This political power-hunger is wont to batten on the activities of another group, whose aspirations are on purely mercenary, economic lines. I have specially in mind that small but determined group, active in every nation, composed of individuals who, indifferent to social considerations and restraints, regard warfare, the manufacture and sale of arms, simply as an occasion to advance their personal interests and enlarge their personal authority.

But recognition of this obvious fact is merely the first step towards an appreciation of the actual state of affairs. Another question follows hard upon it: How is it possible for this small clique to bend the will of the majority, who stand to lose and suffer by a state of war, to the service of their ambitions? (In speaking of the majority, I do not exclude soldiers of every rank who have chosen war as their profession, in the belief that they are serving to defend the highest interests of their race, and that attack is often the best method of defence.) An obvious answer to this question would seem to be that the minority, the ruling class at present, has the schools and press, usually the Church as well, under its thumb. This enables it to organize and sway the emotions of the masses, and make its tool of them.

Yet even this answer does not provide a complete solution. Another question arises from it: How is it these devices succeed so well in rousing men to such wild enthusiasm, even to sacrifice their lives? Only one answer is possible. Because man has within him a lust for hatred and destruction. In normal times this passion exists in a latent state, it emerges only in unusual circumstances; but it is a comparatively easy task to call it into play and raise it to the power of a collective psychosis. Here lies, perhaps, the crux of all the complex of factors we are considering, an enigma that only the expert in the lore of human instincts can resolve.

And so we come to our last question. Is it possible to control man's mental evolution so as to make him proof against the psychoses of hate and destructiveness? Here I am thinking by no means only of the so-called uncultured masses. Experience proves that it is rather the so-called "Intelligentzia" that is most apt to yield to these disastrous collective suggestions, since the intellectual has no direct contact with life in the raw, but encounters it in its easiest, synthetic form—upon the printed page.

To conclude: I have so far been speaking only of wars between nations; what are known as international conflicts. But I am well aware that the aggressive instinct operates under other forms and in other circumstances. (I am thinking of civil wars, for instance, due in earlier days to religious zeal, but nowadays to social factors; or, again, the persecution of racial minorities). But my insistence on what is the most typical, most cruel and extravagant form of conflict between man and man was deliberate, for here we have the best occasion of discovering ways and means to render all armed conflicts impossible.

Yours very sincerely,

A. Einstein

Text © Copyright International Institute of Intellectual Co-operation, 1933

Cultural persecution: the first step towards genocide

by Frederic V. Grunfeld

"Part of my purpose in writing this book [Prophets Without Honour, see biographical note below] *is to give readers some inkling of what was lost in the collapse of the Weimar Renaissance, and how much of it remains forgotten to this day. Those who have not studied the arts of Germany in detail can hardly be expected to grasp the magnitude of the disaster..."*

Text © Copyright 1979, 1980, by Frederic V. Grunfeld.Reproduction prohibited

THE racial policies of the Third Reich were applied with equal ferocity to the orthodox and the assimilated, to bankers and beggars, Nobel laureates, department store clerks and school children; to the president of the Academy, Professor Liebermann, and to the German women's fencing champion, Helene Mayer (popularly known as *die blonde He*), who won two Olympic medals for Germany; to the 100,000 Jewish veterans, many of them wounded or crippled, who had fought for Germany during World War I and had earned their 31,500 iron crosses as bravely as the next man. At the same time, the Nazis proceeded with the willful destruction of everything that had to do with the Weimar Renaissance. During the early years of the regime the world was treated to the unusual spectacle of a whole nation deliberately committing cultural suicide. In the prevailing mindless frenzy to follow-the-*Führer*, the mere possession of intellect became grounds for suspicion, and "Aryans" who persisted in trying to exercise it were denounced in the Nazi press as *weisse Juden* (white Jews). As one popular Nazi jingle expressed it:

Intellectual—the word sounds so Jewish
and shrill;
A true German man can never be an
intellectual!

Nazism from the first had been essentially a revolt of the Know-Nothings, though their ranks were soon swelled by members of the aristocracy: as a cultural revolution it aimed at nothing less than the annihilation of the German intelligentsia. It was as if the early Nazis could hardly wait to get their hands on the machinery of State so that they could begin smashing works of art and burning books. As a matter of fact, one of the party's first official acts, after winning the local elections in Thuringia in 1930, was to order the destruction of the fragile, elegant murals created by Oskar Schlemmer (an artist of impeccably "Aryan" antecedents) for the Bauhaus at Weimar. And within months after taking over the central government of the Reich in 1933 they had succeeded in paralyzing the literary life of the nation, pauperizing its theatrical and musical activities and stripping its museums of all great modern art from Van Gogh and Picasso to Max Beckmann and Paul Klee.

All this was done with an air of triumph and complacency, as well as an utter disregard for any practical consequences. More than 1,100 "non-Aryan" faculty members of universities and technical institutes lost their jobs in the initial wave of persecution. When the Nazi minister of education, Rust, jovially inquired of Professor David Hilbert, mentor of the famous Göttingen Mathematical Institute, how mathematics was faring at Göttingen under the new dispensation, he received the laconic reply "But Herr Minister, there is no mathematics left at Göttingen!" A travelling exhibition that made the rounds of German schools at the same time displayed Einstein's picture in the form of a "wanted" poster that identified him as an exiled subversive who remained at large and "still unhanged." A postwar German writer, assessing the damage which Nazi policy inflicted on the nation's scientific establishment, described the result in the rueful phrase, *die emigrierte Bombe.*

Altogether, some 360,000 people—slightly more than half of the German-Jewish community—were able to flee Germany so long as the exits remained open; virtually all those who were left behind were annihilated. The refugee intellectuals accounted for only a small fraction of the total, yet they constituted the greatest intellectual migration in history. Included among them were countless non-Jews who chose not to make their peace with Hitler: Heinrich and Thomas Mann, for example, or the playwright and ex-cavalry officer Fritz von Unruh; the poet Max Hermann-Neisse, the Austrian novelist Robert Musil, Erich Maria Remarque *(All Quiet on the Western Front)* and the Bavarian writer Oskar Maria Graf, who had responded to the Nazi burning of the books with an open letter demanding, "Burn my books, too!" They were joined in voluntary exile by musicians like the brothers Fritz and Adolf Busch and the composers Paul Hindemith

"A comprehensive system of concentration camps served as an instrument for massive population annihilation in the occupied countries. The Nazis established 6,900 camps of various kinds within the Reich and the occupied countries—in Poland these included Auschwitz, where 4,000,000 perished, and Majdanek, with 360,000 victims. In addition to mass assassinations, such as those at Auschwitz where whole convoys of prisoners were taken from the arrival point direct to the gas chambers, starvation was also used as a means of extermination. Prisoners' rations provided only about 700 calories a day and this, coupled with heavy manual work, soon resulted in physical deterioration. The average life expectancy of a prisoner in a concentration camp was barely six months".

Piotr Matusak (Poland)

Photo © History Committee for the Second World War, Paris

The infamous concentration camp of Auschwitz-Birkenau (Oswiecim-Brzezinka), in southern Poland. It is now the site of the Oswiecim State Museum founded in 1946 as a memorial to the victims of the Nazi terror who perished there during World War II.

Photo © Keystone, Paris

On 10 May 1933, a torchlight procession of students, carefully orchestrated by Nazi propaganda minister Goebbels, wound its way along the Unter den Linden to a square opposite the University of Berlin where a huge pile of books had been accumulated. Torches were set to the pile and some twenty thousand books went up in flames in the biggest auto-da-fé of modern times. Among the authors whose books were thus destroyed were Thomas and Heinrich Mann, Lion Feuchtwanger, Erich Maria Remarque, Albert Einstein, Jack London, H.G. Wells, Freud, Gide, Zola and Proust.

and Ernst Krenek; by the architects Walter Gropius and Ludwig Mies van der Rohe, and by the painters Max Beckmann, Kurt Schwitters and Paul Klee. Their attitude was summed up by the composer Béla Bartók, who left Hungary for America when he saw the Nazis taking over the lands of the old Hapsburg empire: "If someone stays on here, when he could leave, he can thereby be said to acquiesce tacitly in everything that is happening here."

For understandable motives, some of the minor poets stayed behind to applaud the exodus. "Our wheat is being threshed on the threshing-floor of literature," declared the neo-romantic poet Börries von Münchhausen (appropriately enough, a descendant of the celebrated "Liar Baron" von Münchhausen). "What does it matter that, in sweeping out the chaff, a few golden grains are lost? Germany, the heart of all nations, is wasteful, like all true hearts; stormy and Siegfried-like beats its pulse." The truth was that virtually the whole harvest had been swept out the door. As Dorothy Thompson informed her American readers, "practically everybody who in world opinion had stood for what was called German culture prior to 1933 is now a refugee." But it was not until after the war that the full extent of the damage became apparent. "German literature is so mutilated that it cannot recognize its own condition," wrote Walter Muschg, who had watched "the destruction of German literature" from a neutral sanctuary in Switzerland. The Nazi years had extinguished a vital spark. "Since then Germany has no longer possessed a great literature. When the terror came to an end it remained silent."

A whole generation of writers had been "buried alive" in the process, their books sent to the pulp mill, their names expunged from the libraries. In exile, if they were not already internationally known like Thomas Mann, they lost their reading public and the possibility of earning a living with their native language: only a few of the younger authors able to switch languages in midstream, like Arthur Koestler, could continue to support themselves by writing. And postwar Germany, for a variety of reasons, was slow to come to terms with its uncomfortable ghosts of the twenties and thirties. What remains is "a literature of the dead," as Muschg pointed out, "or rather of those who died too soon, of those who were disowned and forgotten. There is a great modern German literature, but it lies buried beneath the ruins."

But besides material for a tragedy it also contains the makings of an epic, for the most terrifying odyssey of modern times had, at almost every stage and station, its poets and chroniclers who left a soul-shattering record of their struggle to remain human in a murderous world where death, in Paul Celan's bitter line, had become "a master craftsman from Germany"—*der Tod ist ein Meister aus Deutschland.* There was, I am afraid, no satisfying moral conclusion to this epic: as a test of human endurance it was as meaningless as the trial of Kafka's Joseph K. Significantly, one of its first victims was the assassinated Existentialist Theodor Lessing, whose most interesting work, *Geschichte als Sinngebung des Sinnlosen,* concerns the idea that the writing of history is the art of conferring meaning upon events that, in the very nature of things, have no meaning. If one searches for a meaning in the German-Jewish tragedy there is, I fear, only one lesson to be learned: that in the never-ending confrontation between the head and the truncheon, the latter usually wins out, at least in the short run. As the philosopher-poet Salomo Friedländer, who called himself Mynona (*anonym* spelled backward), pointed out at the time, "Any damned fool can put a bullet through the most brilliant brain." ■

FREDERIC V. GRUNFELD, *of the USA, is a cultural historian and a contributing editor to* Connoisseur *magazine. He is the author of several books including* Berlin, The Hitler File, *a social history of Nazism, and* Prophets Without Honour *(McGraw-Hill, 1980) from which this article is extracted. His* Wayfarers of the Thai Forest: the Akha *(Time-Life Books, 1982) is the first book ever on these hill people from the Burma-Thai border region.*

The Polish paediatrician, educator and writer Janusz Korczak (1878-1942) devoted most of his life to writing for and about children and to work in child welfare, notably as director of a Warsaw orphanage for Jewish children where he practised educational methods far ahead of his time (see* Unesco Courier, *June 1979). In October 1940 his orphanage was transferred to the newly constructed Warsaw ghetto. Two years later Korczak died in the Treblinka extermination camp to which he was deported with the orphans whom he had refused to abandon although he received several offers of safety for himself. Unesco has published a selection of Korczak's works (in French) as part of its literature translations programme. Below, Korczak with some of the pupils of his Warsaw orphanage.

Photo © CAF, Warsaw

Strange hiding-place

An arms cache in the Lascaux grotto

by André Malraux

The text published right is an extract from André Malraux's autobiographical work Antimemoirs, *published in 1967. In it the famous French writer and politician (1901-1976) evokes his experience as a member of the Resistance. Under the name "Colonel Berger", Malraux was leader of the* maquis *in the Lot-et-Garonne and Corrèze* départements *of southwestern France. After playing an active role in the Resistance he fought in Alsace and Germany as commander of the "Alsace-Lorraine" brigade.*

Text © Copyright Reproduction prohibited
André Malraux *Le miroir des Limbes* I, *Antimémoires* V, 3 (pages 479 à 481) Bibliothèque de la Pléiade © Editions Gallimard

AT the beginning of 1944, I had inspected the hiding-places of all our *maquis* for the first time. Some of them contained the arms which were intended for the volunteers who would join us when the landing was announced. There are numerous caves in Périgord, and we climbed the iron ladders placed there for pre-war tourists to locate our hidden weapons in a honeycomb of cavities like the boxes of a Magdalenian theatre. But the biggest cave, at Montignac, was underground, and the cache a long way from the entrance. We carried powerful torches, for night had fallen, and anyone who got lost there was a dead man. The passage became so narrow that soon we could only advance sideways. There was a right-angled turn, and on the rock which seemed to bar our way a vast drawing appeared. I took it for a guide-mark made by one of our guides, and shone my torch on it. It was a frieze of superimposed bison.

At Font-de-Gaume, the prehistoric paintings were blurred. These bison, on the contrary, were stamped in the rock like seals, their sharpness all the more remarkable for the fact that the walls were great smooth stones, now rounded, now hollowed out, not like rocks but like organs. These petrified entrails through which one had to worm one's way, for the rock-fault did not form chambers, seemed like the bowels of the earth. The bison, if not now a guide-

Photo © Edimedia, Paris

The underground press played an important role in French resistance to the Nazi occupying forces. As well as spreading information, it denounced economic pillage and the requisition of workers, and revealed the exploits of patriots and the harshness of Nazi repression. In 1943 2 million copies of some 1,000 underground journals were being printed. After the war a large number of new French publications grew out of these clandestine news-sheets.

Photo © Edimedia, Paris

From its scattered beginnings, the French resistance grew constantly in range and organization between 1940 and 1944. The units which fought against the occupying forces came from a wide spectrum. At the beginning of 1944 they became the* Forces Françaises de l'Intérieur *(F.F.I.), whose action would be co-ordinated with Allied operations. In the great battle which expelled the Nazis from France, General Eisenhower reckoned that the F.F.I. and the Resistance were worth 15 divisions. Right, in Brittany, two members of the Resistance brief advancing Allied soldiers after the Normandy landings in June 1944.

mark, had perhaps been one some twenty thousand years earlier. All subterranean caverns arouse disquiet, since a sudden caving-in could bury one alive there. Not death, but entombment; and the bison gave this tomb a mysterious soul, as if they had risen up from the ageless earth to guide us. Over our heads, perhaps, German patrols were prowling; we were advancing towards our weapons; and the bison had been prancing on the stone for two hundred centuries. The crevice widened out and ramified. Our torches did not illuminate these chasms: their beams guided us through them as a blind man is guided by his stick. We could no longer distinguish the rock except by the gleaming fragments of the walls which surrounded us. In each cleft, one's torch would pick out another cleft—reaching down into the heart of the earth. This darkness had nothing to do with the night; it belonged to chasms as enclosed as the sky is open, succeeding one another endlessly, and ever more disquietingly because they appeared to have been consciously fashioned. My companions had ceased to talk except in whispers. Then a passage so narrow as to be encompassed by the haloes of our torches, and in which we had to stoop, led to a crevasse about a hundred feet long and thirty feet wide. The guides stopped, and all the beams converged. On red and blue parachutes spread out on the ground lay container after container. Suggestive of two animals of some future era, a pair of machine-guns on their tripods, like Egyptian cats on their forepaws, kept watch over them. On the roof, clearly visible this time, immense horned animals.

This place had undoubtedly been sacred, and still was, not only because of the spirit of the caverns but also because an inexplicable bond united these bison, these bulls, these horses (others receded beyond the circle of light) and these containers which seemed to have come here of their own accord and which were guarded by these machine-guns pointing at us. On the vaults, covered in a kind of saltpetre, ran sombre and magnificent beasts, carried along by the movement of our beams of light like a flight of heraldic emblems. The man next to me lifted the lid of a container full of ammunition, and the torch which he put down cast an enormous shadow on the roof. Doubtless the shadows of the bison-hunters cast by the flame of their resin torches had been the shadows of giants long ago...

We went down by a knotted rope into a fairly shallow pit, on the wall of which was an elementary human form with a bird's head. A pile of bazookas fell over with a weird clang which faded into the shadows, and the silence returned, more desolate and more menacing than before.

As we went back, the rock here and there suggested limbless animals, as old walls suggest human figures. And we emerged to find the little trees on the hillside white with frost, the River Vézère, the war-time darkness over the dim hump of Montignac, the stars, the transparency of the terrestrial darkness.

"Are you interested in the paintings?" asked the guide. "Some kids found them when they went in there to rescue a puppy in September 1940. It's very very old. Some scientists came, but then in '40, you can imagine!"

It was Lascaux. ■

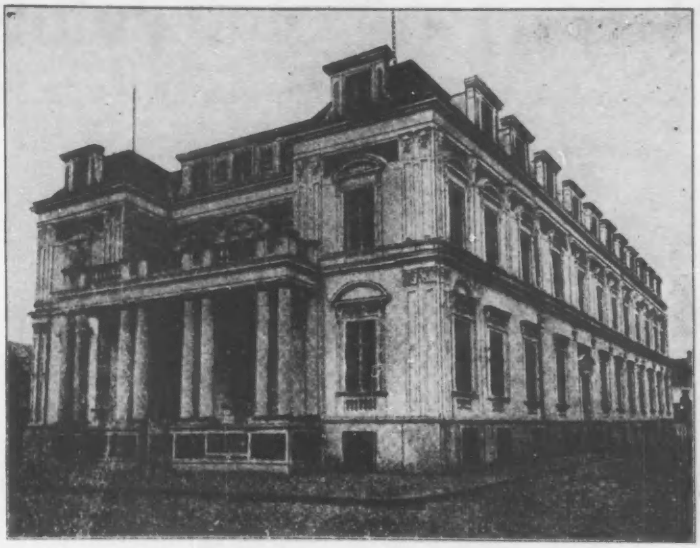


Photo © Yugoslav Permanent Delegation to Unesco

Destroyed during the War, the National Library of Serbia in Belgrade (above) was reconstructed in 1974. In that year a liaison committee between the Library and the Bibliothèque Nationale in Paris was created in order to encourage French libraries to offer books to the newly-rebuilt institution. One of those who responded to the appeal was André Malraux who in June 1975 presented to the National Library the manuscript of his book* La Tête d'Obsidienne *(see text below).

"In the darkest hours of the last war—after Warsaw, Rotterdam and Dunkirk— (...) Belgrade rose in rebellion one Spring morning in 1941. It and all its people chose liberty. (...) The ensuing reprisals were a measure of the rage caused by its refusal to submit. From the earliest moments of the bombing of the city, begun without a declaration of war, tens of thousands of human beings were annihilated, and, with them, the Library, an institution fundamental to any national culture.

"In commemoration of these events I have decided to donate my manuscript to the National Library of Serbia, now rebuilt. I see in the destiny of your Library the destiny of a people for whom culture and freedom are one and indivisible. Human dignity, which has always cost your country dear, still inspires its independence."

Photo © Edimedia, Paris

The art of concealing art

Saving the treasures of the British Museum

by Harold Plenderleith

TO anyone who has not been caught up in a major war or who may not have been exposed to the possibility of annihilation by aerial bombardment, the problem of protecting inanimate objects may seem straightforward, namely to bury them in the ground or, at least, in a deep cellar or "pill box", sheltered from the possibility of a direct hit or exposure to blast. This, however, is less than a half truth, as the British Museum was to find out when, in the course of the First World War (1914-1918), London was suddenly threatened by imminent bombing as part of a Zeppelin attack.

A disused section of the Underground Railway was hurriedly commissioned and converted as a "safe deposit" for valuables (with little foresight!) on the grounds that it lay deep in the earth and at the same time was conveniently near to the museum.

What the conditions were like there, no one now knows, but when at the conclusion of hostilities the collections came back to the museum, they were found to be in such a dreadful condition that the facilities available for salvage and repair proved to be inadequate. The solution was to establish a chemical laboratory to investigate causes of deterioration, to devise and supervise the application of "safe" procedures for restoration, and to publish the results. Such was the origin of the British Museum Research Laboratory.

The main cause of deterioration was not far to seek. It arose from the sudden and prolonged exposure of objects in a hostile environment. Varying atmospheric conditions, temperatures and relative humidities, inadequate or excessive ventilation and polluted air had taken their toll, having reacted differently upon objects according to their structure and the materials of which they were composed.

In some cases the objects contained the seeds of their own destruction. Insect parasites had attacked wood, paper, textiles and leather, and affected books and ethnographical material. Examples of stained paper, drawings and watercolours were common. Growths of micro-organisms occurred on leather and buckram bookbindings, as these provided a generous measure of the required nutrients and proliferation was encouraged by darkness and damp; metallic corrosion was promoted by the presence of water-soluble salts, especially noticeable in the objects from the deserts of Egypt and Mesopotamia.

In parallel with diagnosis and the earliest experimental treatment of objects, the laboratory instigated tests to study the growths of micro-organisms under varying conditions with a view to defining, if possible, what might be regarded as a safe museum climate.

As twenty years elapsed between the end of the First World War and the outbreak of the Second World War there was ample time to devise measures for overcoming hostile environments.

One thing was clear. There could be no doubt that some of the most valuable of the National Collections were in the heart of London and located too near to target areas for safety. A policy of decentralization was therefore an urgent necessity and this involved endless visits of inspection to localities far from the metropolis. In time a short list of acceptable reception areas was drawn up. The packing and loading in museum basements presaged the long trek by road or rail from the museum to these destinations—not by any means an easy task in those days of severe transport congestion.

The National Library of Wales in Aberystwyth was chosen as the main repository for the most valuable books and manuscripts and it functioned admirably. The National Gallery in London had its own special requirements. Paintings are essentially two-dimensional and easily damaged by excessive man-handling and are best hung on dry internal walls or mobile hanging metal screens where they can be easily inspected. Furniture, on the other hand, requires floor room, duckboarding and racking, and smaller objects of all kinds have to be accommodated in dust-free boxes of easy access as this is essential both for study and in the interests of systematic inspection.

With the completion of the scheme there was no doubt that much had been done to avert a major disaster to the national treasures, assuming that the museums in London, and indeed anywhere else, would never be regarded as targets for the bombers. There came a sinister moment, however, in 1940, when Coventry Cathedral was destroyed by enemy bombs. This heralded the advent of the so-called Baedeker Raids, the name suggesting that there might now be no limit to artistic losses.

From then onwards, thoughts turned to the desirability of establishing one great central depository. But where? All the likely sites had by this time been snapped up, and it took a Mr. Winston Churchill (as he then was) to solve our problem by offering an underground limestone quarry in Wiltshire, of enormous size, ideal in every respect save that it had been at one time earmarked as a mushroom farm and the relative humidity inside was of the order of 98 per cent!

Following detailed discussion among the various authorities concerned and tests by engineers, who discovered a means of waterproofing the walls, floors and ceilings, the quarry was gratefully accepted. A

Photo © History Committee for the Second World War, Paris

On 7 September 1940, Hermann Goering launched the bombers of the Luftwaffe against London in an attempt to break British morale and will to resist by destroying the capital. In the first two nights some 850 civilians were killed and 2,350 wounded. The assault on London and other cities, "the Blitz" as it was popularly called, continued almost without a break until May 1941. The bombing of London continued intermittently throughout the war, intensifying during 1944 with the launching of the V1 and V2 pilotless planes and rockets. Right, London in 1941 during an air raid.

Valuable objects from the British Museum being stored in the safety of a London underground railway tunnel.

plant-room was installed with equipment to air-condition the repository and auxiliary generators were at hand in case of breakdown. The result was that within a year we had the ideal underground museum store with a constant atmosphere at 15°C and 60 per cent relative humidity, well lit from end to end and occupying a volume of no less than 5,600 cubic metres. This was enough to accommodate the greater part of the already decentralized collections of the British Museum as well as furniture, carpets and other objects from the Victoria and Albert Museum in London and smaller collections of the first importance from many sources.

In the meantime the National Gallery had been evacuated and its paintings transported in adapted railway containers from Trafalgar Square to a great slate quarry near Blaenau Festiniog in Wales. The Manod quarry, as it was called, had high vaulted ceilings and a series of shelters could be constructed within, each protected by a powerful metal over-structure lest there should be any falling debris from the vaulted roof above. All was well, however, save perhaps for the prevalent light-grey slate dust. This was found to be neutral and non-scratching and easily removed, although at first it gave cause for misgivings. These shelters provided 1,600 cubic metres of storage volume.

The interesting discovery was made at Manod that while the average temperature was fairly constant, heating the air to 15° reduced the relative humidity to 58 per cent, a close approximation to optimum conditions, and it was thus much cheaper to maintain conditioned air there than in the British Museum Quarry in Wiltshire where the freeze-drying process applied. They even established a restorer's studio in the Manod quarry where paintings could be maintained in excellent condition: but less and less treatment was found to be necessary with the passage of time. The behaviour of both painted panels and canvases in this respect indicated the great advantage of using conditioned air, at least, in the preservation of paintings, and, as the officer-in-charge at Manod commented, "the pictures behaved admirably and gave far less trouble in cracking and blistering than had ever been the case at Trafalgar Square." One good result has been the conditioning of the air in the National Gallery buildings in Trafalgar Square in London, now completed. It seems that despite the complicated processes to which they had been subjected there was no single case of serious damage to paintings to be reported, and the collection was eventually reinstated in London in its entirety six and a quarter years after the first load had left for Wales.

A similar survival claim can be made for the collections from the British Museum and the Victoria and Albert Museum.

As things happened, it was the British Museum main buildings in London that caused the greatest concern as these still contained a large quantity of books. Manifestly, it had been found impossible to move some ten million books to safety: the task was to extract from the shelves the most valuable, and that task was formidable enough. There remained, in fact, almost the entire contents of the four steel quadrant book-stacks and one of these suffered a direct hit from what seemed to be a large oil bomb. This gave rise to a major fire which could only be contained by professional fire brigades, and many of these came to our assistance from far and near.

As each quadrant was designed to contain a quarter of a million books, the loss was great but, since then it has been largely made up with the help of generous gifts from all over the world and, not least, from our former enemies.

If there is any important lesson to be learnt, even from this short account of a tragic period in museum history, it is to emphasize the supreme importance of preparing plans, in detail, well in advance of a threatened catastrophe. ■

HAROLD PLENDERLEITH, *of the U.K., was the first director of the International Centre for Conservation (now ICCROM), created in Rome by Unesco, of which he is now director Emeritus. He was in charge of the British Museum Research Laboratory from its inception and is a founder member and past president of the International Institute for Conservation of Historic and Artistic Works. He is the author of many books and studies on problems of conservation including* The Conservation of Antiquities and Works of Art *(1956, 2nd edition with A. Werner 1971).*

THE BLUE AND WHITE SHIELD

"Many wonders of the world have been lost in war and strife; He who protects and preserves has the happiest lot."

Goethe

The path of devastation left in the wake of World War II emphasized to an unprecedented degree the need for an international code for the safeguard of works of art during wartime. A major step forward in this direction was made on 14 May 1954 when the International Convention on the Protection of Cultural Property in the Event of Armed Conflict was signed at a conference convened by Unesco at the Hague (Netherlands). The Convention, the emblem of which is a blue and white shield, set up a kind of cultural "Red Cross" under which works of art, monuments and historic buildings would be accorded the kind of protection given to hospitals, ambulances and medical personnel in time of war. As of 22 January 1985, 73 States had deposited instruments of ratification or accession to the Convention.

On the night of 17/18 September 1940, the British Museum had a fortunate escape when it was struck by a large (1,000 kilos) high-explosive bomb which failed to explode. The bomb penetrated four concrete floors and ended up in the basement. Had it exploded it would have completely wrecked the building. Below, the Museum's Prints and Drawings section after the passage of the unexploded bomb.

Photos courtesy of the Trustees of the British Museum, London

Photo © History Committee for the Second World War, Paris

Art under siege

The Hermitage Museum during the 900-day onslaught on Leningrad

by Boris Piotrovsky

A few days after Nazi Germany attacked the Soviet Union, it became clear that an enemy army group had launched an offensive against Leningrad, one of the USSR's most important political, economic and cultural centres, and the cradle of the October Revolution. What could be done to evacuate the city's population, moveable property, and above all the treasures of the Hermitage, one of the world's greatest museums?

Ten days after the outbreak of war, a convoy set off eastwards for Sverdlovsk with the most precious objects; it was followed by a second convoy twenty days later. In all, 1,118,000 art objects were evacuated. Meanwhile, on the Museum premises in Leningrad much remained to be done: the remaining collections had to be stored in safety and precautions had to be taken against fire. Empty frames hung from the walls like gaping holes, sheets of plywood were spread out on the floors and covered with sand. Barrels of water for fighting incendiary bombs were placed in all the rooms.

Caught in the grip of a powerful blockading force, Leningrad defended itself for 900 days. It was subsequently learned that the Nazi leaders intended, after the city had been captured, to destroy it completely by flooding as a place of "no political or cultural value". Consequently their troops were ordered to reject offers to surrender, "if any such offer were to be made".

No such offer was made. Leningrad was resolved not to surrender. In spite of the extreme rigours of the siege and the ferocity of the artillery barrages and bombing to which they were subjected, the people of Leningrad did more than resist; they fought for victory with all their might.

For the population of the beleaguered city, the worst hardship was starvation, aggravated by the onset of cold and the terrible shortage of heating fuel. In autumn 1941, factory workers were only getting 250 grammes of bread a day; for other categories of the population the ration was reduced to 125 grammes. A number of substitute foods were developed thanks to the ingenuity of the city's scientists. Nevertheless, 640,000 persons died of starvation.

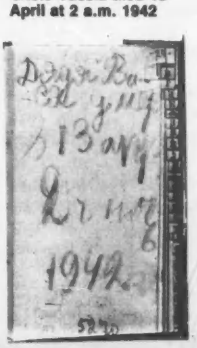
But hunger was not the only killer. The besiegers dropped over 100,000 bombs and fired over 150,000 shells on Leningrad, a museum-city of major historical and cultural importance. In shelters improvised in the cellars of the Winter Palace and the Hermitage more than 2,000 people crammed together, including the museum employees and their families, scientists, painters and other artists.

Photo © APN, Moscow

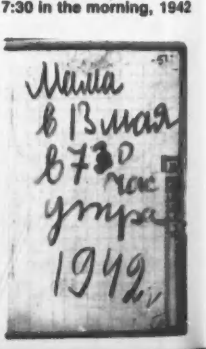
Leningrad, 1941. Sculptures from the city's summer garden find a refuge.

Photos © APN, Moscow

Uncle Vassia died 13 April at 2 a.m. 1942



Mother, 13 May at 7:30 in the morning, 1942



The Hermitage was hit by two bombs which caused minor damage. More serious harm was done by accurate artillery fire: all the windows were shattered, snow penetrated into the rooms, and the Museum's walls, roof and ceilings sustained heavy damage. A shell hit the famous gate of the New Hermitage.

In spite of everything and although eighty museum workers died of hunger, the survivors resolutely worked on, supported by the whole population. Scientific works were written, meetings were held, the great cultural events of the peoples of the USSR were commemorated. In October 1941, a lecture was given in the icy rooms of the Hermitage to mark the 800th anniversary of the birth of the Azerbaidjani poet Nizami. In December of the same year, in the depths of the hardest winter, a lecture was given to mark the 500th anniversary of the birth of Navoi, the founder of Uzbek literature. The poets Nikolai Tikhonov and Vsevolod Rojdestvenski, wearing their uniforms, came to spend a day's leave. In June 1942, the first exhibition of works by Leningrad painters depicting the defence of the city was organized. Four such exhibitions were held during the war, bringing to the people of Leningrad some 6,000 paintings, drawings, sculptures and works of graphic art. The cultural activities of Leningrad were never interrupted.

Restoration work on the Museum began even before the end of the war. In November 1944, those works which had never left the city were exhibited in three renovated rooms. On 8 November 1945, after the victory, sixty-nine exhibition rooms were reopened for the objects which had returned from evacuation. ■

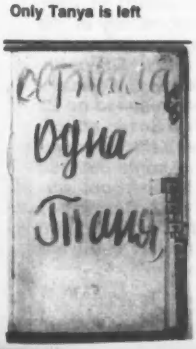
BORIS PIOTROVSKY, *Soviet archaeologist and orientalist, is director of the Hermitage Museum, Leningrad. A member of the USSR Academy of Sciences, he is the author of many studies on the history and archaeology of the Transcaucasus and the ancient East, for which he was awarded the USSR State prize. He was among the Soviet archaeologists who took part in Unesco's campaign to save the temples of Nubia.*

During the 900-day blockade of Leningrad, almost 700,000 men, women and children died of cold, hunger, bombing and shelling. Entire families were wiped out. One of them is described in a diary kept by 11-year-old Tanya Savicheva, left. Again and again she recorded yet another death in her family (below). Tanya herself was later evacuated from Leningrad, but her body was weakened by hunger and she died in 1943.

Photos © APN, Moscow

1942

Only Tanya is left



They are all dead

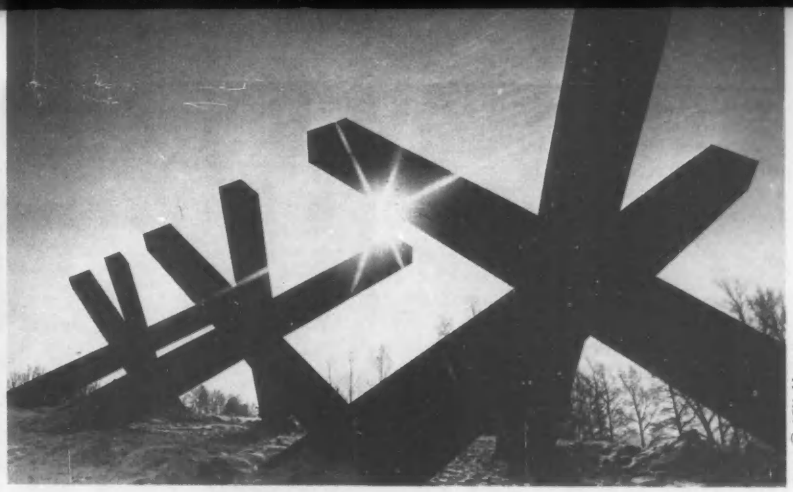


Photo © APN, Moscow

These stylized "hedgehog" anti-tank obstacles, erected after the war at the suburb of Khimki in the outskirts of Moscow, mark the point reached by reconnaissance troops on 2 December 1941, the ultimate limit of the advance of Hitler's forces on the Soviet capital.

Can we save civilization?

by Yuri Kirshin

DURING 5,000 years of history, mankind has experienced more than 14,000 wars. The aims pursued through these wars were widely different. States took up arms in order to enforce political or economic domination, to plunder or exterminate peoples, or to speed up or slow down the pace of other nations' political, economic or spiritual development. Wars were widespread at the time of the foundation of centralized States. The waging and outcome of a war influenced social processes; the aggressor could conquer economic centres, sources of raw materials and commercial outlets, impose unequal terms of trade, and bring security to its empire. Political authorities also often turned to wars of conquest to solve their internal problems and overcome their own crises.

However, the kings, emperors or chiefs of general staff who prepared their future campaigns in the tranquillity of their headquarters, or the politicians who were engaged in the clash of parliamentary debate, did not fail to weigh the advantages and disadvantages of a war. Would the State lose more than it gained? Would the expense of occupying the territory of another State be justified? Might not the cost of such and such a victory turn out to be too high? Realistic politicians, considering a given objective negligible compared with the efforts required to achieve it, have often turned their backs on war, and signed peace treaties instead.

Today, a world war and, *a fortiori*, a nuclear war can no longer constitute a political instrument. It would be madness to pretend otherwise, because the only effective riposte to a nuclear attack is a nuclear counter-attack. Since the chances of restricting a nuclear attack are nil, the latter would immediately spread to all the continents and would convulse the entire planet, compromising the very survival of humanity. Thus, whatever its objective—military, political or economic—nuclear aggression would be an absurdity.

In addition to these cold practical considerations, there is a highly important factor which no politician should forget even for a second: those who lose their lives in all wars, great and small.

"A house has been hit. There are few victims; one dead. Imagine that it is your child, your wife or your father. Would you say that there were few victims? This one victim was perhaps your reason for living." In these few words, Serguei Obraztsov, an internationally known Soviet man of the theatre, sums up all the horrors of war.

The 14,000 wars have claimed four thousand million human lives. A third world war, if nothing is done to prevent it, would alone claim as many victims. In the past army confronted army, soldiers fought against other soldiers. But weapons have become more and more lethal; innocent populations are increasingly affected. Ten million died in the First World War, almost all of them soldiers. The Second World War claimed 50 million human lives, and there was one civilian victim for each soldier killed at the front. A nuclear world war would exterminate the whole of humanity.

If war spells the death of humanity, preparation for war is like a serious illness which gnaws at all the organs. In 1982, world spending on arms amounted to over 650 thousand million dollars, more than the total income of one-third of humanity living in the fifty poorest countries. The 1982 Report of the Independent Commission on Disarmament and Security issues, under the chairmanship of Olof Palme of Sweden, pointed out that a 10 per cent reduction in arms expenditures by the nuclear powers alone would make it possible at least to double aid to the thirty-one least developed countries. The industrialized countries are not the only ones caught up in the arms ▶

"When we speak of victory, we are speaking also of something of the utmost importance that is a fact of life today—collaboration between States with different social systems and structures. The forming of the anti-Hitler coalition was very instructive. In recognizing that they had to work together to save their own people and, indeed, all humanity, the statesmen of the time set what has become a standard of wise and responsible policy".

Vitaly Korotitch (Ukrainian SSR)

Photo © APN, Moscow

Culture is always a victim of war. Right, the entrance hall of the Shevchenko Museum, Chernigov, the Ukrainian SSR, in 1944.

▶ race: the developing countries, 90 per cent of whose population live in the direst poverty, account for two-thirds of the volume of the international arms trade. The 130 armed conflicts which have occurred in the last forty years, and which have been characterized by a growing internationalization, have taken place in these countries.

Whereas there was only one point of tension on the eve of the First World War—Europe—and two on the eve of the Second—Europe and the Far East, today the world's trouble spots are proliferating and each one of them could spark off a world war.

Humanity today faces no more urgent task than that of braking this dangerous trend, of limiting and reducing arms, in a word, of saving civilization. To banish the spectre of world war is to provide resources for solving all the other fundamental world problems, notably those relating to food, the environment, and energy. Only peace and peaceful coexistence between States with different social systems can really open future perspectives to the inhabitants of our planet.

In this context, the objectives of the struggle for peace have acquired a new dimension. The struggle for peace is now the struggle for the continuance of the human species.

Nuclear world war is not inevitable. The time when an aggressor could decide at the drop of a hat whether or not to spark off a war is long since over. Nevertheless, the preparations for nuclear war have gone too far. It will only be possible to avoid such a war if we fully devote ourselves to the defence of peace throughout the world, and do all we can to safeguard civilization. The defence of peace will be truly world-wide if all peoples, whatever their socio-economic system, devote themselves to it with the means at their disposal.

Some countries have not known peace for generations. Children are born while bombs fall, learn to read and write in shelters; people move around with their rifles, eyes fixed on the skies where enemy aircraft may appear at any moment. All these people know of peace is what their elders have told them about it. During this time in Europe, for the first time in our history, a second generation is growing up which only knows about war from books and films. If for forty years the world has not been devastated by a general conflagration, the merit must largely go to the United Nations, which was created precisely to maintain peace, strengthen security, and promote co-operation between peoples. But at the present time the United Nations and Unesco must multiply their efforts in this field. For if humanity is incapable of defending peace today, there will be no one left tomorrow to talk of it to coming generations, even supposing, and it is an unlikely supposition, that such generations will be born. ■

YURI KIRSHIN, *of the USSR, is a philosopher and specialist in problems of war and peace, a subject on which he has published many studies. He is a member of the editorial staff of the literary and arts review* Friendship Among Peoples.

Photo © APN, Moscow

Left, February 1943, inhabitants of Stalingrad (now Volgograd) return to their shattered city. The Soviet victory at the battle of Stalingrad was one of the great turning points of World War II. The battle raged from 17 July 1942 to 2 February 1943. A turning point was reached on 23 November 1942, when two Soviet attacking groups joined up near Kalach to complete the encirclement of some 330,000 Nazi troops. The last of these troops surrendered on 2 February 1943. During this final stage of the battle some 200,000 Nazi soldiers perished and 91,000 were taken prisoner.

"There were five of us in the family home, fresh out of school. What should we do? The decision was unanimous. We would not bend the knee, we would prepare to fight. So every morning we went secretly to the scenes of recent battles to collect weapons. Soon we had amassed enough weapons to arm an entire detachment. Gradually young men from neighbouring villages joined our group which became the nucleus of a partisan unit. We had to face many problems. Most of us knew nothing about handling weapons. Furthermore, winter was approaching. We had to dig rough shelters for ourselves in the forest. Each day was a new ordeal and we often went two days at a time without food. After long marches in the rain we were often unable to light a fire to dry ourselves and had to sleep in our soaking clothes."

Anatoli Stouk, (Byelorussian SSR)

Photo © Tass, Moscow

Right, children sheltering during a bombardment.
Official Byelorussian statistics show that one out of every four inhabitants of the Byelorussian SSR died during the war.

Photo © APN, Moscow

Photo © E. Kantyche

Byelorussia's forests and marshes are ideal terrain for guerrilla warfare, and the Byelorussians took every advantage of it. By 1943, some 375 thousand partisans were harassing the enemy rear and were in control of 60 per cent of Byelorussian territory. The ranks of the partisans were swelled by people from many countries who had escaped from prisoner-of-war and concentration camps. Right, members of a partisan group operating in the Minsk region; from left to right, Gerbert Dits, an anti-Nazi German, Albert Barliche, a Frenchman, Alexander Krutchkov, a Russian, and Grigori Rybalko, a Byelorussian.

Photo *Unesco Courier*

Bitter harvest. Looking for all the world like some fantastic, petrified weed, these fragments of shell-casings, bombs, mines, rifles, tanks, aircraft were "harvested" by a farmer preparing his field for sowing. He gathered them together and formed them into this striking "sculpture" which now forms part of the huge memorial complex known as The Battlefield, erected in memory of those who died at the battle of Stalingrad.

The forgotten resistance

The story of resistance to Hitler within Nazi Germany has been largely forgotten. For most people internal German resistance was limited to the unsuccessful bomb plot of 20 July 1944. Yet by 1937 opposition to Hitler was beginning to build up even among those who had at first supported him. Among the first resisters were such men as Carl Goerdeler, the mayor of Leipzig, who broke with the Nazis in 1936 over their anti-semitism, and Ulrich von Hassell, former German ambassador in Rome who left the diplomatic service early in 1938.

As William Shirer writes in his history of Nazi Germany, *The Rise and Fall of the Third Reich:*

"There were others, lesser known and mostly younger, who had opposed the Nazis from the beginning and who gradually came together to form various resistance circles. One of the leading intellects of one group was Ewald von Kleist, a gentleman farmer and a descendant of the great poet. He worked closely with Ernst Niekisch, a former Social Democrat and editor of Widerstand *(Resistance), and with Fabian von Schlabrendorff, a young lawyer (...) There were former trade-union leaders such as Julius Leber, Jakob Kaiser and Wilhelm Leuschner. Two Gestapo officials, Artur Nebe, the head of the criminal police, and Bernd Gisevius, a young career police officer, became valuable aides as the conspiracies developed (...)"*

Other well known opponents of the Nazi regime included Count Helmuth von Moltke, who later formed the "Kreisau Circle" resistance group, Count Albrecht Bernstorff, Freiherr Karl Ludwig von Guttenberg, editor of a Catholic monthly, and the eminent Protestant clergyman Pastor Dietrich Bonhoeffer.

The first important military recruit to the resistance was no less a person than the Chief of the Army General Staff, General Ludwig Beck. On 18 August 1938, unable to persuade Hitler to give up his plans for action against Czechoslovakia, which he believed would lead to a general war in Europe, he resigned as Chief of the General Staff but continued to work with the resistance.

Other high-ranking officers were won over, including General Erwin von Witzleben, commander of the Berlin military district, General Franz Halder, who had replaced Beck as Chief of Staff, General Count Erich von Brockdorff-Ahlefeld, commander of the Potsdam garrison, and General Erich Hoepner, commander of an armoured division. The conspirators planned to seize Hitler as soon as he gave the final order to attack Czechoslovakia. The plot collapsed when news came through of the signing of the Munich agreement on 29 September.

The resisters did not give up. By 1941 many more top German officers, among them notably General Henning von Tresckow, had become disillusioned with Hitler. Plans were made to arrest Hitler but these were thwarted by the Fuehrer's tight security arrangements. Assassination seemed to offer the only solution.

In 1943, von Tresckow organized a number of assassination attempts. On 13 March, a bomb disguised as two bottles of brandy was placed on the aircraft taking Hitler back to Germany from a conference in Smolensk, but the detonator failed to fire.

Following this setback, Colonel Freiherr von Gersdorff courageously volunteered to undertake a suicide mission. With two bombs with ten-minute fuses concealed in his greatcoat he went to a Heroes Memorial Ceremony held on 21 March attended by Hitler, Goering and Himmler. His plan was to stay as close to Hitler as possible and to blow up both the Fuehrer and himself. Hitler was scheduled to spend half an hour at the ceremony, but he left after only eight minutes. A number of other suicide bomb attempts were made later but all of them were thwarted, including a first attempt, on 26 December 1943, by Klaus Philip Schenk, Count von Stauffenberg.

Photo © History Committee for the Second World War, Paris

Photos © Keystone, Paris

Von Stauffenberg was to be the hero of the famous, and almost successful, bomb plot of July 1944. Although by then the war was clearly lost, the plotters were inspired to go ahead with this last desperate attempt by a stirring message from General von Tresckow:

"We must prove to the world and to future generations that the men of the German Resistance Movement dared to take the decisive step and to hazard their lives upon it. Compared with this objective, nothing else matters."

As all the world now knows, the attempt failed by a hairsbreadth. Hitler's riposte was swift and devastating. Some 7,000 arrests were made and 4,980 victims met horrific deaths to slake the Fuehrer's thirst for vengeance.

Many others committed suicide rather than face the horrors of trial and execution by the "People's Court". Among them was General Henning von Tresckow. The day after the failure of the bomb plot he drove away from his headquarters on the Eastern front and blew himself up with a hand grenade. His last words to his aides constitute a fitting epitaph to all those Germans who died resisting the inhuman Nazi machine:

"Now they will fall upon us and cover us with abuse. But I am convinced, now as much as ever, that we have done the right thing. I believe Hitler to be the arch-enemy, not only of Germany, but indeed of the entire world. In a few hours time I shall stand before God and answer for both my actions and the things I neglected to do. I think I can with a clear conscience stand by all I have done in the battle against Hitler. A man's moral worth is established only at the point where he is prepared to give his life for his convictions." ■

"The work of a thousand years is nothing but rubble".
This was how Carl Goerdeler described the bombed areas of western Germany in a letter to Field-Marshal von Kluge in July 1943 in which the former mayor of Leipzig begged the Field-Marshal to join the German resistance in its efforts to eliminate Hitler. Photos show the ruins of the Reichstag building, Berlin (below), devastated Dresden (far left) and Hamburg (centre).

Losses in World War II

Estimates of total losses during the Second World War, vary between 40 and 50 million dead. Whereas the dead of the War of 1914-1918 (in which 68 million men were mobilized) were for the most part members of the armed forces, the dead of the 1939-1945 War consisted of almost equal numbers of civilians and military personnel (92 million men mobilized). This high proportion of civilian victims was due to a number of special characteristics of the last War, including the widespread introduction of aerial bombardment but, above all, the physical liquidation (in gas chambers, massacres, etc.) by the Nazis of several million Jews (about 6 million?) and of Soviet prisoners of war, famine, partisan struggles, reprisals, etc. Among countries which suffered most from such atrocities, on the basis of estimates which clearly can only be approximate, Poland comes first with 5.8 million dead (of whom only 300,000 were military personnel), or 15 per cent of total population, followed by the USSR with about 20 million dead (including 7 million? civilians), or 10 per cent of total population, and Yugoslavia with 1.5 million dead (of whom 75 per cent were civilians).

The USA lost 300,000 dead, all military personnel; the United Kingdom lost 326,000 military personnel and 62,000 civilians; France lost 205,000 military personnel and 400,000 civilians (including 180,000 deportees); Italy lost 310,000 dead, half of whom were civilians; Germany lost 4.4 million military personnel (including Austrians), 3.5 million of them on the Soviet front, and about 500,000 civilians.

To these losses must be added those of Belgium (88,000), Bulgaria (20,000), Canada (41,000), Finland (90,000), Greece (160,000 including 20,000 military personnel), Hungary (about 430,000), New Zealand (12,000), The Netherlands (about 210,000), and Romania (about 460,000). In Asia, China lost some 6 to 8 million dead and Japan 3 million (including 600,000 civilians, 150,000 of whom died at Hiroshima and Nagasaki). The figures for other countries occupied by Japan, as well as for India, where famine was the major killer, are not known.

Source : Grande Encyclopédie Larousse © Librairie Larousse, 1978, Paris. (For figures of Australian losses see page 18)

'The sound and the fury'

Photo © Keystone, Paris

1

Photo © Edimedia, Paris

2

Photo © Roger Viollet, Paris

3

Photo © Roger Viollet, Paris

4

Photo © Edimedia, Paris

5

"After the assassination of [Reichsprotektor] Reinhard Heydrich by Czech parachutists sent from England, a heavy blow was dealt to all resistance in Czech territory; the fascist terror redoubled its force. The villages of Lidice and Lezaky were razed to the ground. The men were shot, the women taken off to concentration camps, and the children sent for germanization. At the time of martial law 3,188 Czechs were arrested; 1,357 of them were executed".

Jurij Krízek
Assistant Director of the Institute of Czechoslovak and World History of the Czechoslovak Academy of Sciences

1

Photo, war-damaged Prague in 1945

2

In 1940 some 400,000 Jews were herded into the Warsaw Ghetto, an overcrowded section of the city sealed off behind a high wall. By the Spring of 1943 only about 60,000 were left; the rest had died of starvation or been transported to extermination camps. On 19 April an uprising broke out in the Ghetto. It was crushed by the Nazis after a month's heroic struggle, and the Ghetto was completely destroyed. There were few survivors.

3

Two days after the aerial attack on Pearl Harbour, on 7 December 1941, Japanese forces landed in the Philippines and by May 1942 controlled the entire territory. United States forces returned to the Philippines in October 1944, but it was not until February 1945 that all resistance was overcome. Photo, United States troops evacuate Philippine civilians from the war zone.

4

New Britain, the largest island of the Bismarck Archipelago, southwest Pacific, was captured by Japanese forces in 1942 and recaptured by Australian troops in 1945. During the War Australia lost 30,000 dead and suffered 65,000 non-fatal casualties. Photo, supplies of food and ammunition being brought ashore during the reconquest of the island.

5

Founded in 529 by St. Benedict of Nursia, the monastery of Monte Cassino, in central Italy southeast of Rome, was the parent house of Western monasticism. During World War II it was also a key point in the "Gustav Line", the defensive line established in 1944 to block the Allied advance on Rome. In the course of four months bitter fighting the monastery was completely destroyed. After the war it was re-built to the plans of its predecessor. The library, archives and some paintings were saved as were the famous bronze doors dating from 1066.

6

No place to hide. An anxious mother shepherds her children through the desolation of a shell-torn Belgian town. Hitler launched his troops against three neutral States, the Netherlands, Belgium and Luxembourg, on 10 May 1940. Four days later, overwhelmed by the suddenness and the ferocity of the attack and faced with the threat that Rotterdam and Utrecht would be bombed mercilessly if resistance continued, the Netherlands Government had little choice but to capitulate. Within a week, despite heroic resistance, Belgium too was overrun and, on 27 May 1940, the Belgians were obliged to ask for an armistice. Underground resistance to the Nazis continued in the Netherlands and Belgium throughout the war, and many men from both countries escaped to England to join the Allied forces.

Photo © Keystone, Paris

6

Photo © Roger Viollet, Paris

7

7

The indiscriminate bombing of Chinese cities, which began in earnest in May 1939, was an appalling feature of the long war between China and Japan that lasted from 1931 to 1945. One of the main targets was Chungking (photo), to which the Chinese Government had transferred in 1937. Chinese losses during the War have been estimated at between 6 and 8 million.

Photo © Keystone, Paris

8

Photo © Keystone, Paris

9

8

British amphibious vehicles carrying troops and supplies along the flooded road between Kleve and Nijmegen, in the Netherlands. Nijmegen and Arnhem, a few miles further north, were the scene of airborne landings in 1944 by United States, British and Polish paratroops. To hamper their progress the Nazis flooded the area by destroying the system of dykes built over the centuries to protect this low-lying area.

9

Operation "Torch", the landing of Allied troops in what was then French North Africa in November 1942, following the defeat of Rommel and the Afrika Korps at El Alamein and at a time when the battle of Stalingrad was at its height, marked one of the turning points of the war. Allied forces entered Tunis and Bizerta early on 7 May 1943 and all resistance in Africa ceased five days later. Over a quarter of a million prisoners were captured along with huge quantities of arms and other war materials.

Photo Robert Capa © Magnum, Paris

10

10

Forty-one years ago, on 6 June 1944, two days after their comrades-in-arms had captured Rome, Allied forces set out from the United Kingdom on operation "Overlord", the invasion of France. Landings began at dawn in the face of fierce resistance and by nightfall 156,000 men had come ashore. Within days the bridgehead was firmly established and the final stage in the overthrow of Hitler's Third Reich had begun.

"We sat in the trench and looked out at the sea. When it started to get light, I saw ships through the haze. When the fog lifted it looked like a city out there. Between the ships you could not see any water. It was unbelievable—terrifying to behold. Directly in front of us stood an enormous ship, and the GIs [US soldiers] began to spring out."

Heinrich Severloh
(German soldier manning a coastal defensive position on D-Day).

Photo © History Committee for the Second World War, Paris

A road cleared amidst the devastation of Hiroshima.

A time-table for peace

by the Venerable Gyotsu N. Sato

MOST Japanese over sixty today remember the Second World War with great bitterness.

They remember the agonizing loss of life of their families and other loved ones. They remember with no less regret, although without the same inner suffering, the loss of their precious possessions and livelihoods as well as the destruction of the all-encompassing texture of their cultural values.

The vast potential for death, destruction and evil inherent in war, either in the form of sudden slaughter or of protracted suffering on a massive scale, has grown in the past four decades until the total denial of life-sustaining social and environmental systems is now possible, including the ultimate disruption of the environment on a global scale.

To some extent this was perceived by wise observers forty years ago, but today it is a nightmare experienced by everyone.

On this bridge at Hiroshima a passerby left a white "atomic shadow" on the pavement which his or her body had screened from nuclear radiation. It is estimated that 60 per cent of the deaths at Hiroshima were caused by thermal rays and fire, 20 per cent were due to injuries caused by the blast, and 20 per cent to physical disorders caused by radiation.

The war's far-reaching destruction both of mind and matter, and its after-effects which went far beyond those of previous wars, enable us to envisage for the future a vast, comprehensive human suffering reaching its ultimate dimension.

In view of the immensity of the scourges of war, we, the people of the United Nations, developed a common conception of a time when international security should no longer be sought in the accumulation of armaments, through the doctrine of alignment and strategic superiority, or through a precarious balance of deterrence, but in disarmament. This conception has been transformed into a historic

Photo © History Committee for the Second World War, Paris

「お母さん」声だけは、たしかに俊明の声じゃった。
朝日俊明くんの学生服
The school uniform of Toshiaki Asahi.
The blast occurred while they were assembled on the banks of the Motokawa River (400 meters from the hypocenter). The students and the teacher who was with them died on the spot. Toshiaki, however, was finally able to reach home. His face was swollen and all the skin had peeled off to the point where his mother could no longer recognize him. He died the morning of August 9.
When he cried,"Mother!", only his voice was recognizable.
生命の重さを知った now
HIROSHIMA 1945
Photo © The Hiroshima Peace Memorial Museum

human consensus set forth in the Final Document of the United Nations Special Session on Disarmament, 1978.

We Japanese are unable to forget even for a moment the results of a hurried wartime experiment in societal destruction wreaked on two medium-sized cities, each with a population of 400,000, Hiroshima and Nagasaki. One reason why the experiments were performed was to compare the results of different fissile matters: Hiroshima was destroyed with a bomb whose fissile material was uranium equivalent to 12.5 kilotonnes of TNT, Nagasaki by 25 kilotonnes of TNT equivalent of plutonium.

It has been calculated that 150,000 died at Hiroshima, and 75,000 at Nagasaki within six months of the bombs being dropped. Even today there are scientists who claim that less casualties were caused by the effects of radiation than was once believed. They have tried and are still trying to lay more emphasis on blast effects than on the effects of radiation, at a time when Japan's *Hibakusha*, the atom-bomb survivors, are engaged in the final stages of a struggle for a State Reparation Law, before the last witnesses have disappeared.

There must be renewed efforts on the part of all the world's nation-States, whether or not they are members of the United Nations, to reconfirm the agreed Principles of Disarmament unanimously adopted in the First Special Session on Disarmament in 1978. There must be disarmament negotiations and a time-table leading to General and Complete Disarmament, with nuclear disarmament being given the highest level of priority.

Fragments of clothing, watches and other accessories shown in this poster belonged to some of those who perished in the atomic bomb attack on Hiroshima on 6 August 1945. In centre, the school uniform of a boy who died 3 days after the bomb was dropped. The following year the city anounced that the bomb had killed 118,661 people. Today the death toll from the bomb is estimated at over 200,000.

Our fellow Buddhists, under the guidance of the late Sage the Most Venerable Nichidatsu Fujii, have travelled all round the world in a World Peace March. In support of a *Time-Limited* Comprehensive Disarmament Programme, they travelled over five continents via five routes, starting from the venue of the World Assembly of Religious Workers for General and Nuclear Disarmament held in Tokyo in April 1981, and ending at the Second Special Session on Disarmament held in New York in June and July 1982. How can the disarmament time-table be arranged? How should we bind the behaviour of all States? Here I should like to plead that all nation-States should now agree to the Comprehensive Disarmament Programme and complete their implementation of it by the end of this century at the latest. They should, first of all,

- Declare the use of nuclear weapons illegal, under any circumstances,
- Defuse and abandon on a prorata basis all nuclear war-heads in all carriers and in all arsenals,
- Stop production of nuclear fissile material for military purposes,
- Stop nuclear explosions at once either for military or "peaceful" purposes,
- Stop immediately extra-territorial deployment of nuclear-related weapon systems.

This reiteration of the historic consensus is imperative if this generation of ours, which is responsible for having created the interacting postures for fighting nuclear war on each side of the confronting blocs, is not to unleash a nuclear war.

Let us all demand not only the powerful nuclear super-States but all States around the world, to co-operate in the formulation of the Comprehensive Disarmament Programme accompanied by the binding time-table mentioned above, and then let us see! ■

GYOTSU NICHIGU SATO *is a Japanese Buddhist monk who is Vice-President of the Geneva-based International Peace Bureau. After graduating from the Imperial Military Academy, he served in the Japanese Air Force and later worked on missile development. Since he entered the Buddhist Order of Nihonzan Myohoji in 1945 his activities on behalf of peace have taken him to many parts of the world. (See "From Man of War to Man of Peace,"* Unesco Courier, *September 1980).*

'Emancipation for men and for peoples'

"The Second World War put to a severe test not only countries and peoples, but also, in a sense, the whole system of international relations. Fascist aggression endangered the very existence of races, States and nations. And so the war against fascism was not confined to the field of military operations and, with the achievement of victory, led to the revision of international relations based on force, colonialism, inequality and the servitude of men and peoples. The ensuing changes, of which the anti-colonial revolution is perhaps the most significant, emanated from the world's new awareness, of its refusal to live in future as it had before the conflict.

"The creation of the United Nations would bring new possibilities of emancipation for men and for peoples...

"The struggle for liberation which the Yugoslav nations and nationalities waged during the war against fascism has one particular aspect of which the people of my country are rightly proud. It was both a fight for liberation against fascism and an act of self-determination on the part of our nations and nationalities. These were determined to create a new community, to establish between themselves relationships of a new type, and to set up a new social system. Under this new system the fundamental law of the country would enshrine, firstly, the right of each nation and nationality to its full identity, and to political, economic and cultural fulfilment; and secondly, the right of everyone not only to enjoy individual liberty but to participate effectively, on an equal footing, in the self-managed determination of the destinies of a community of liberated men and peoples".

Kole Casule
(Yugoslav writer)

A broadening of the trend towards decolonization was one of the major results of the Second World War. A spirit of resistance had grown in countries occupied by the fascist powers, and this ferment was echoed in other colonies where the call for independence was voiced by increasing numbers. One important milestone in the anti-colonial movement was the Asian-African Conference held at Bandung (Indonesia) in April 1955. It was attended by delegates from 29 countries representing over half the world's population. The Chinese Prime Minister Chou En-lai, below right, played a leading role at the Conference, which was organized by Indonesia, Burma, Ceylon, India, and Pakistan. Below left, Mahatma Gandhi, the father of the Indian nation, who preached a doctrine of non-violent resistance. India achieved independence in 1947.

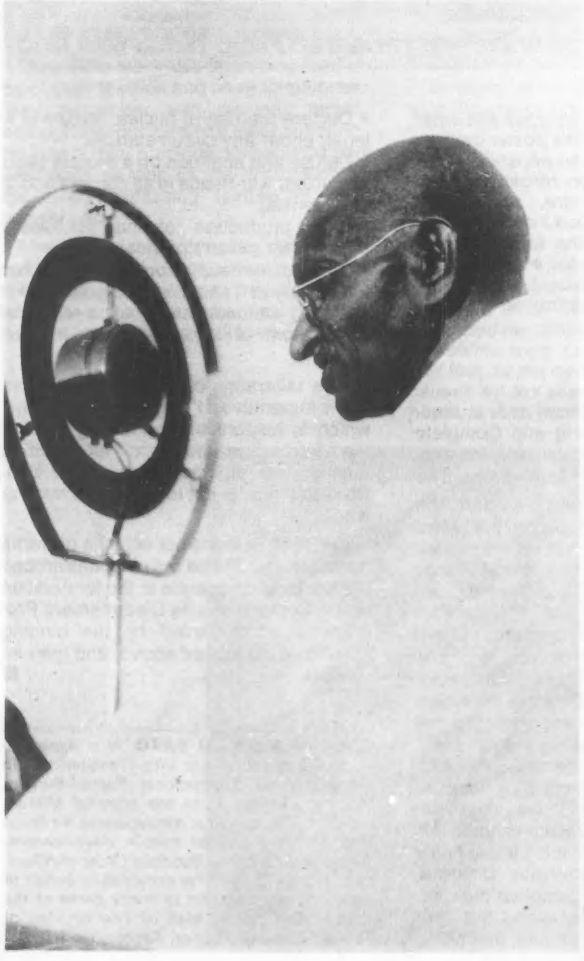


Photo © Roger Viollet, Paris

Photo Ernst Haas © Magnum, Paris

Unesco: the birth of an ideal

Miscellaneous No. 16 (1945)

FINAL ACT

OF THE

UNITED NATIONS CONFERENCE FOR THE ESTABLISHMENT OF AN EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANISATION

[WITH RELATED DOCUMENTS]

LONDON, 16TH NOVEMBER, 1945

Presented by the Secretary of State for Foreign Affairs to Parliament by Command of His Majesty

LONDON
HIS MAJESTY'S STATIONERY OFFICE
1945

Cmd. 6711

Photos Unesco-Keystone

Photo Ernst Haas © Magnum, Paris

Unesco was set up immediately after World War II to contribute to international peace and security by promoting international co-operation in education, science and culture. When its Constitution was adopted in London on 16 November 1945 it bore the signatures of delegates representing countries from every continent. Below left, the cover of the Constitution, featuring a photo of St Paul's Cathedral during the Blitz. A Preparatory Commission was established to draw up a plan for the future programme of the Organization. The Constitution came into force on 4 November 1946 when it had been accepted by 20 countries. Left, a meeting, in February 1946, of the Commission's Sub-Committee on the Educational, Scientific and Cultural Needs of Devastated Areas. Below, the Preamble to Unesco's Constitution.

The Governments of the States Parties to this Constitution on behalf of their peoples declare:

That since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed;

That ignorance of each other's ways and lives has been a common cause, throughout the history of mankind, of that suspicion and mistrust between the peoples of the world through which their differences have all too often broken into war;

That the great and terrible war which has now ended was a war made possible by the denial of the democratic principles of the dignity, equality and mutual respect of men, and by the propagation, in their place, through ignorance and prejudice, of the doctrine of the inequality of men and races;

That the wide diffusion of culture, and the education of humanity for justice and liberty and peace are indispensable to the dignity of man and constitute a sacred duty which all the nations must fulfil in a spirit of mutual assistance and concern;

That a peace based exclusively upon the political and economic arrangements of governments would not be a peace which could secure the unanimous, lasting and sincere support of the peoples of the world, and that the peace must therefore be founded, if it is not to fail, upon the intellectual and moral solidarity of mankind.

For these reasons, the States Parties to this Constitution, believing in full and equal opportunities for education for all, in the unrestricted pursuit of objective truth, and in the free exchange of ideas and knowledge, are agreed and determined to develop and to increase the means of communications between their peoples and to employ these means for the purposes of mutual understanding and a truer and more perfect knowledge of each other's lives;

In consequence whereof they do hereby create the United Nations Educational, Scientific and Cultural Organization for the purpose of advancing, through the educational and scientific and cultural relations of the peoples of the world, the objectives of international peace and of the common welfare of mankind for which the United Nations Organization was established and which its Charter proclaims.

A new hope in the nuclear age

by Lewis Thomas

TWO years ago, I felt in my bones, as a dead certainty, that we were in for World War III, and that it would be fought with thermonuclear weapons. I had no idea when it would come, or how, but I was sure that it would come, sooner or later.

I thought we were well along in the same sequence of prewar years that had occurred in the decade just before World War I, when international folly suddenly exploded to everyone's astonishment, with no one realizing at the time how it had happened or what was to come. Or in the same series of blundering, feckless years before the slower explosion of World War II. I could see no differences in the public behaviour of statesmen and diplomats, or in the steady blind build-up of arms, or in the tone of international rancour.

Two years ago, my highest hope was that I wouldn't live to see it.

I thought that every reason for abandoning nuclear weapons had been discussed often enough and publicly enough. Everyone knew the necessary numbers. They were easy to remember once you'd read them, strung together in those analytical studies, the worst-case numbers: 1.1 billion human beings killed outright in any full-scale exchange of nuclear bombs between the superpowers and their allies. And another 1.1 billion dying in the aftermath a few weeks later. All told, 2.2 billion abrupt deaths, approximately one-half of the human species, most of them in the United States, Europe, the Soviet Union, China and Japan. Most hospitals gone, most doctors gone, and, even if not gone, left with nothing whatever to be done for the kinds of injury to be expected under such weapons.

And yet, all the evidence seemed to prove that we were getting ready for just such a war.

Everyone has always said, of course, that they will never be used. They are not even *intended* to be used. They are here in order to prevent the other side from using them against us. They are symbols of strength, of will, even patriotism, and that is all. And recently we have been hearing a new kind of reassurance about them. Do not worry, the technical people are saying, science will soon be making them safe. The missiles that carry them are being equipped with artificial intelligence, computers carrying detailed maps of the underlying targets on the other side of the earth, with guidance systems enabling them to explode within a few yards of an enemy's commanding general. The bombs are getting smaller, neater, less destructive because of these gifts from science. We can have wars the old-fashioned way, delicate and precise, as romantic as medieval swordplay. Do not worry about evaporated cities, they say. But then the people who talk this way always add in a lower voice, "but we must keep some of the big ones on hand, just in case something goes wrong." More technology will save us.

I have never heard of a war in which things did not go wrong, most of the time as incalculably wrong as possible. I would expect, as something close to a certainty, that any use of thermonuclear bombs by any nation would sooner or later be followed by full use, by everyone, in an atmosphere of total confusion and total fury.

The truth of the matter is that there exists an important and influential body of people with excellent minds and good public manners who wish mightily to preserve nuclear weaponry, and to improve it to the ultimate aim of unqualified military superiority. I am certain that views like this are held by many in places of authority throughout the world. It is not true that everyone agrees on arms control and eventual arms reduction, even though everyone asserts this ambition in public.

The present situation goes against the grain, beyond comprehending. We are, I suspect, the most fundamentally, biologically, compulsively social creatures on the planet. As individuals, we spend most of our waking hours at this: we nod at each other, make endless small-talk, keep *at* each other from dawn to dawn, make friends wherever we can. We begin smiling at other people in our earliest infancy, hoping for a smile back, and the hope never dies even when, as happens in some unlucky lives, it never does happen. We cannot get along without each other, and when we try to do this it takes the fun out of living. No doubt about it, we are a sociable social species.

What we need right now is more common sense, and collective common sense at that. Most of all, we need a new set of reasons for giving up nuclear weapons.

I think we have one, and that is why I feel differently from my despair of two years ago, with some hope for the future. Not much, just some, and qualified hope at that, but these days I'll take any hope I can get.

The two circles superimposed on this photo of a nuclear test explosion illustrate dramatically the enormous increase in explosive power of the arsenals of the world that has occurred since the end of World War II. If the small circle represents all the explosives used during World War II, the large circle would represent the size of present-day nuclear arsenals; present stockpiles of nuclear weapons are estimated at 20,000 megatons (one megaton is equivalent to one million tons of TNT) four times the threshold level that scientists believe would be enough, if nuclear war were to be launched, to trigger the onset of nuclear winter and the certain annihilation of the human race. To give an idea of the qualitative change that has occurred in destructive potential it need only be pointed out that a single thermonuclear bomb can have an explosive power greater than that of all explosives used in all wars since gunpowder was invented.

Paradoxically, the reason for optimism is the scientific discovery, first bumped into about 3 years ago, that nuclear weapons are much worse, immeasurably worse, than anyone had previously guessed. It is the nuclear winter scenario (see article page 26) that gives me hope.

This is the heart of the matter. If the scenario is as probable as it now seems, but even if it is only a possible one, it means that no single country will ever be able to fire enough bombs at another country, in quantities sufficient to be of decisive military significance, without risking its own destruction in the process, even if there is no return fire. The weapons have turned out to be not just homicidal and genocidal. The wonderful thing about them, which changes everything for the future of arms control and arms limitation negotiations, is that they are suicidal.

The way it works is embarrassingly simple, so simple that no one understands why it was not thought of until we were 35 years into the nuclear age. It is smoke that does it.

The only way to avoid the catastrophe would be to avoid setting fires, especially fires in cities. But this is what nuclear bombs are designed to do, what they are good at. If you can imagine a nuclear war in which cities and forests are scrupulously avoided, and submarine ports, munitions factories, oil and gas fields and refineries, railroads and military headquarters are left alone, and nothing is aimed at except other bombs in very remote silos, or other generals standing alone in open fields, then

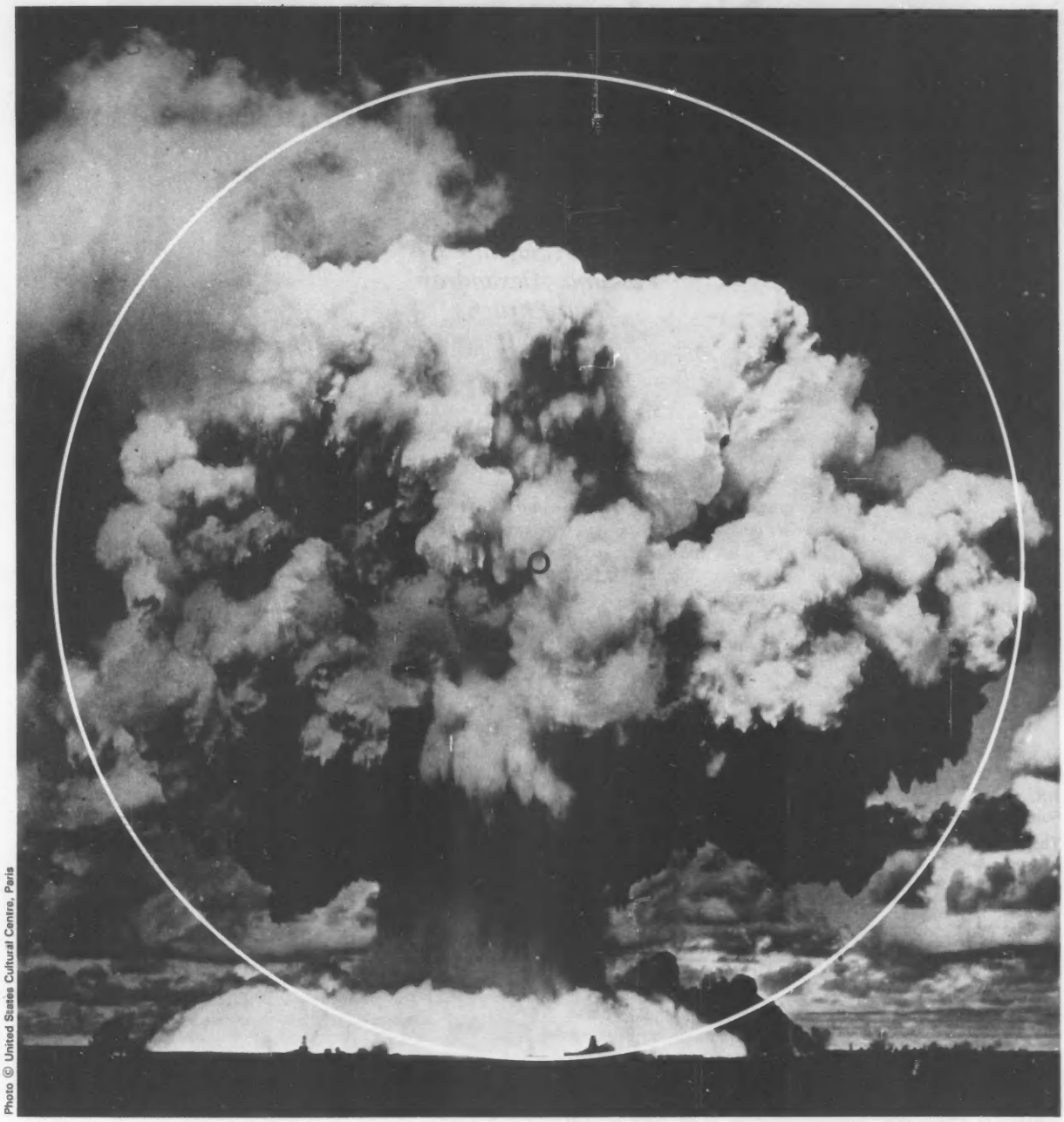


Photo © United States Cultural Centre, Paris

you can imagine a nuclear war without the risk of nuclear winter, but you would have to imagine that such a war would begin and then end in that way, without involving cities. Given the record of other wars in this century, I find it hard to imagine such ascetic, aseptic restraint on the part of any nation, especially any nation on the verge of defeat. If there is ever to be a nuclear war, the cities will be targets. Except for one thing: the country that fires off enough bombs to bring the other country to its knees will have a few days to celebrate, and will then find itself under the same black cloud, frozen solid along with all the other non-combatant bystander countries.

I have been astonished that the press and television news programmes have thus far paid so little attention to this scenario. It ought to have been a running front-page story from the outset, and it should still be on the front pages.

If the predictions are correct, or anywhere near correct, the revelation of nuclear winter will come to rank, I believe, as one of the great scientific achievements of this century—maybe, considering what is at stake, the most influential of *any* century. The explosives simply cannot be used as military weapons, and that, I believe and pray, is that.

That is the substance of my "hope in the nuclear age". It is not just a hope for human beings, and for our children and their grandchildren and theirs and theirs. It is a hope for the earth. ■

LEWIS THOMAS, *of the USA, is president emeritus of the Memorial Sloan-Kettering Cancer Center, New York, and professor at the State University of New York, Stony Brook. A distinguished essayist, he is the author of* The Lives of a Cell: Notes of a Biology Watcher *(1975),* The Medusa and the Snail: More Notes of a Biology Watcher *(1980), and* Late Night Thoughts on Listening to Mahler's Ninth Symphony *(1983).*

Nuclear winter

The world-wide consequences of nuclear war

by
Carl Sagan
Vladimir Alexandrov
Paul Ehrlich
Alexander Pavlov

We present below extracts from the abridged transcript of a forum on the worldwide consequences of nuclear war, held in Washington, D.C., on 8 December 1983, under the chairmanship of United States Senators Edward Kennedy and Mark Hatfield and sponsored by the Nuclear Freeze Foundation. The main speakers at the Forum were four United States and four Soviet scientists: Carl Sagan, Vladimir V. Alexandrov, Paul Ehrlich, Alexander S. Pavlov, Jack Geiger, Sergei Kapitza, Lewis Thomas and Yevgeny P. Velikhov. The transcripts were first published in Disarmament, *a periodic review by the United Nations.*

DR. CARL SAGAN, Director of the Laboratory for Planetary Studies at Cornell University:

The work I am about to describe has been done with four scientific co-workers—Richard Turco, Brian Toon, Thomas Ackerman and James Pollack, besides myself. From the initials of the authors, this has been called the TTAPS Study.

What we have attempted to do is to calculate, for a wide range of possible nuclear-war scenarios, what the global climatic consequences will be.

To begin, I should like to describe our baseline case, which is a nuclear war in which 5,000 megatons are exploded. This is between one third and one half of the joint strategic arsenals of the Soviet Union and the United States, and is by no means the worst nuclear war that could be imagined.

The results that I am to describe have been discussed in a special meeting in Cambridge, Massachusetts, in April 1983 by 100 specialists in this field. Confirmatory studies have been performed by some eight or ten other groups worldwide, including two such studies in the Soviet Union. There have been other studies in the Federal Republic of Germany, in Australia and in this country, at the National Center for Atmospheric Research, at the Lawrence Livermore Weapons Laboratory and elsewhere. There is a major study starting up at Los Alamos.

What I am describing is by no means just the conclusion of our group, because the results of all the groups I have mentioned are more or less the same.

I want to stress that there are differences on points of detail. We can differ, for example, on what scenarios are more likely. But as I will mention in a moment, the consequences seem surprisingly independent of the kind of war waged, above a certain expenditure of megatons.

And I do not for a moment want to suggest that there is no more work to be done on this subject. There is a great deal more work that needs to be done. The results I am describing are from what is called a one-dimensional model in which the fine particles are free to move up and down according to the laws of physics, but the spreading in latitude and longitude is not by any means done precisely.

Dr. Alexandrov will describe the first Soviet three-dimensional model in which there is an attempt to describe the spreading quantitatively in latitude and longitude. His results are quite similar in general to those at the National Center of Atmospheric Research. Here again, there seems to be a good convergence of results.

So now, let us consider the 5,000-megaton baseline case that I described before; this is a case in which both cities and hard targets like missile silos are targeted, so that there would be both soot and fine dust produced.

The immediate consequences of such a war—which would presumably be fought in the northern mid-latitudes—is that, in the target zone, the obscuration of the sun by soot and dust would make it pitch black. As the fine particles spread, initially in longitude and then in latitude, things get brighter, but it appears that the average in northern mid-latitudes would be about one per cent of the ordinary sunlight on a clear day. And, as Dr. Ehrlich will describe in greater detail, this by itself is already extremely dangerous for plant photosynthesis. Many varieties of plants throughout the northern hemisphere (and, as I will mention, in the southern hemisphere as well) are in deep trouble when, to this extent, the sun has been turned off. And this turning off is for a significant period of time, probably a few months—possibly much longer.

Because the amount of sunlight reaching the surface of Earth would now be so much less, and because it is sunlight that heats the surface of Earth, it gets cold, and, for the baseline case, the temperature decline is substantial; in our calculations to something like −23°C, roughly −10°F. These are average continental temperatures in the northern hemisphere, far from coastlines. (The severity would be moderated somewhat by the oceans, which act as reservoirs of heat). And that means that many exposed plants, animals and humans would freeze to death.

Photo Tadeusz Budzinski © World Environment Photo Contest, UN/FIAP

In addition, you know how in the burning of skyscrapers, say, most casualties come not from the fire itself, but from toxic gases produced by the conflagration of synthetics, insulation, drapes and so on. In the burning of large cities, there would be a great deal of that, and so there is an additional thing to worry about, the production of a toxic smog that would persist at ground level for substantial periods of time.

Now, the fine particles that block the sunlight also carry radioactivity, and since we have tracked the motion of these fine particles, we have in effect also tracked the intermediate time-scale radioactive fall-out. Almost all previous studies assumed that all the radioactivity not promptly deposited on the ground went into the stratosphere, taking a long time to fall out, by which time much of the radioactivity had decayed. In contrast, we find that for a reasonable mix of yields, there are many fine particles put into the lower atmosphere (or troposphere) that fall out faster. The intermediate time-scale fall-out doses are considerably larger, about 10 times more, than has been generally thought in the past.

To give some idea of these numbers, for the baseline case, something like 30 per cent of northern mid-latitude land areas would receive a dose (in the fall-out patterns that go downwind of targets) of something like 250 rads, that is, approaching the mean lethal dose for unprotected human beings. The intermediate time-scale dose of radioactivity far from targets turns out to be something like 50 to 100 rads all over the northern hemisphere. At this dose, the human immune system—our capacity to resist disease—begins to become compromised. This intermediate time-scale dose represents a much more serious radiation burden than has been described in the past.

After the soot and dust fall out, the sunlight gets down to the surface, and things warm up again. This is many months later—say, six to nine months later, although it may be much longer—when conditions may return to their normal values. But there is an additional negative effect: the ozone layer has been disrupted by the high-yield explosions, and so now considerably more ultraviolet light is penetrating to the surface of Earth, several times the amount ▶

Urban dislocation

Within a week after a war, the amount of sunlight at ground level could be reduced to just a few per cent of normal. Urban survivors would face extreme cold, water shortages, lack of food and fuel and serious radiation, pollution and disease problems. They would probably attempt to leave the cities in search of food.

▶ that penetrates now. Ultraviolet light is extremely dangerous to organisms; the nucleic acids and proteins, the two main biological molecules, are sensitive to light in the near-ultraviolet wavelength range.

It now seems that the southern hemisphere would almost certainly be involved in these effects. Conventional wisdom that the southern hemisphere would not be involved comes, in part, from tracking the debris from a single nuclear-weapon explosion. But a single nuclear-weapon-explosion cannot provide enough fine particles to heat the upper atmosphere significantly and cool the surface. However, if you have something like 10,000 explosions, the case is very different. Then, the fine particles absorb sunlight in the northern hemisphere, and the upper atmosphere heats up enormously. The temperature difference between the northern hemisphere and the southern hemisphere then drives a new kind of circulation, on which Dr. Alexandrov will have something more to say, which transports the fine particles across the equator, thereby carrying to some degree the cold, the dark and some of the radioactivity into the southern hemisphere. The idea that there are sanctuaries on the planet to which someone could flee in expectation of a nuclear war now seems much less credible.

So, if we put together these consequences—the dark, the cold, the chemical toxins from the fire, the fall-out, the ultraviolet flux and the fact that the phenomenon would be worldwide (perhaps less severe in the southern hemisphere), we have a new circumstance, a circumstance in which life everywhere on the planet is threatened. The biologists even raise the possibility that the extinction of the human species may be accomplished by nuclear war and nuclear winter.

I would like to stress that there is a level of conflict below which nuclear weapons could not drive the climatic catastrophe, what we call "nuclear winter", and there are levels at which the world arsenals certainly could drive nuclear winter. We do not know precisely where this threshold is, the transition, but it seems clearly far less than the present strategic stockpiles. Very roughly the threshold may be somewhere near 1,000 strategic warheads—it may be a few hundred, it may be several thousand (depending in part on how many cities are targetted). I do not want to pretend we know this to high precision. But let us, just for the next minute or two, call it 1,000 warheads. The global strategic arsenals are somewhere around 18,000—18,000 strategic warheads. And with the present planned buildup in American and Soviet strategic weapons, they will rise in the next few years to something like 25,000 strategic (and theatre) warheads. That means that we are somewhere between 18 and 25 times larger than the threshold needed—if that is the word—to provoke, trigger, this nuclear winter, and put the biology of the planet in jeopardy.

DR. VLADIMIR ALEXANDROV, Head of the Laboratory of Climate Modelling at the Computer Centre at the Soviet Academy of Sciences:

I would like to describe briefly the main climatic consequences of nuclear war.

The climatic effects are, number one, the terrible geophysical consequences of nuclear war. The results which I would like to present today are keyed by a simulation of the large computer climatic model of the Computer Centre of the USSR Academy of Sciences. It is a large three-dimensional model, which includes the general circulation model of the atmosphere and the thermodynamic model of the upper zone.

The calculation of climatic consequences is our last experiment using this model. To simulate these consequences, we used the scenario of Professor Sagan's group, and we studied the consequences of the so-called basic version or basic scenario.

The main impact of nuclear war on our climate is the abrupt, shocking, very deep and long-term cooling of the air over the continents. This cooling is induced by the pollution of the atmosphere by dust and, mainly, soot.

The fireballs of atomic bombs will ignite cities, plants, fuel storage sites and forests. Our civilization is full of organic materials, and the main building block of organic material, the main atom, is carbon. In the atmospheric environment, synthetics do not burn completely, so during burning, elementary carbon is released. This elementary carbon creates the soot. The elementary carbon has a pretty high conductivity, so it absorbs the solar light intensively. So the atmosphere will be opaque to solar light, and the solar flux will be blocked by the pollution of the atmosphere by dust and soot. This result, the absorption of solar light, is highly sensitive in the scenario of nuclear war.

I would like to show you just one example of the temperature drop. In 40 days, the temperature will drop over the United States about 30°C to 40°C. this means that in July, the temperature over the territory of the United States will be 0° to −20°F, or something like that. In January, it will be something like −40 to −60°F. The picture will be the same over the European territory of the USSR. The temperature drop over Scandinavia will be about 50°C; over Saudi Arabia, up to 50°C; over West Siberia, 50°C; over Latin America, 22°C, and so on; over northern Africa, 20°C.

This means that human beings will be involved shortly in very low temperature environments. A very important factor during this period is the strong inter-hemispheric transport. The reason for this is the strong temperature contrast between the air in the northern hemisphere and the southern hemisphere.

We studied the change of the global circulation of the atmosphere, using our model, and we found that the global circulation will be drastically changed in the first three or four weeks. The classical scheme of circulation disappears, and the global circulation represents just one giant cell of circulation, which will transport the enormous amounts of pollutant from the northern hemisphere to the southern hemisphere.

The oceans

As a result of the darkness and cessation of photosynthesis, the phytoplankton rapidly die off, food chains are disrupted and sea life declines. Toxins and silt draining off the land contaminate the coastal zone, and the thermal differential between intensely cold continental land masses and the warmer oceans creates violent coastal storms. Ocean food sources for humanity largely disappear and access to the remainder is severely impaired.

Illustrations Rob Wood, Stansbury, Ronsaville, Wood Inc., 1983 © Open Space Institute, Inc., Center of the Consequences of Nuclear War

Chemical spills

Nuclear explosions in or near cities would ignite oil and gas storage facilities and would rupture tanks containing various toxic chemicals which would spill into rivers and streams. The pollution would kill natural aquatic life.

This means that in about three weeks—not more than one month—the situation in the southern hemisphere will be as bad as in the northern hemisphere, and the tropical region will suffer in an automatic way.

But as a whole, the atmosphere will absorb more energy than now, because it will be dirty. The upper atmosphere will be warmed up more than 100°C. So the temperature will increase with altitude. Now, it decreases with altitude in the troposphere, in the lower layer of the atmosphere, at the bottom of which we live. And when the atmosphere becomes very hot above and very cold below, it will create an enormous superstability. This means that the vertical motion, the so-called convective motion, will be strongly suppressed. At the same time, the vertical transfer of water vapour will be suppressed, so the hydrological cycle will be highly suppressed, and the natural cleaning of the atmosphere by rain will also be suppressed.

So, the pollutants will stay in the atmosphere a much longer time than is now the case.

The permanent increase of temperature described means that the troposphere will disappear, and the stratosphere will start immediately from the surface of Earth.

The whole picture means that in a month—maybe a little bit less or maybe a little bit more—the whole globe will be involved in these terrible consequences of nuclear war, regardless of where and how the nuclear war occurs, because the pollutant, the dust and soot, will be mixed very rapidly all over the globe in the space of some weeks, and the presence of this pollutant will induce this mixing, because the presence of this pollutant will create the huge temperature contrast, which will increase the process of mixing.

The suppression of the hydrological cycle will provoke, will induce, droughts over continents. These droughts will take place in very low temperatures.

At the same time, the oceans will not cool very much. Our calculation shows that the mean temperature drop of the ocean in 10 months will be 1.2°C. So the air over the ocean will be as cool as it is now, maybe several degrees Centigrade less than now. It means there will be huge temperature contrasts between land and sea. These temperature contrasts will create severe storms along sea coasts. During these storms, a huge amount of sea air, full of water vapour, will be transported over the land, and this water will precipitate over the land in the form of snow, of course, and it will start a severe nuclear winter lasting for many months, regardless of when the conflict occurs—in July or in January, it does not matter. And this severe meteorological environment will erase civilization along the sea coasts.

During the heating of the upper atmosphere, the high mountains will probably be warmed up. In our calculations, the temperature over Tibet will increase up to 20°C in eight months. This means that the hydrological cycle of mountain snow and glaciers will be changed in crucial ways, and it is highly probable that this will cause large-scale floods. Because of the melting of huge amounts of snow and ice, these floods may be continental in scale. At the same time, in eight months, the temperature over the land will be low enough—over the United States, the temperature drop will be as much as 20° or 30°C; over northern Africa, as much as 10°C, and so on.

Finally, I would like to say a little about biota climatic feedback. The shocking temperature drop will kill the tropical forests, because tropical forests exist in very narrow temperature bands. So the shocking cooling up to dozens of degrees Centigrade will kill the biota and will kill most living species in our world.

At the same time, the biota, the forests of the temperate zone, will be killed also. This means that the physical properties of the land surface will be changed for many years ahead, after the conflict.

This means that the reflectivity coefficient of the solar sun, sunshine reflected from Earth's surface, will be increased two, three or four times. It means, hence, that the amount of energy which these huge areas of land have now will be decreased by two, three, four times. It means that our climatic system, which is extremely fragile and sensitive to any variations of external and internal parameters, will inevitably rest in a new state. We do not know what state it will be. Maybe it will be a new Ice Age. It is too early to give an answer to this question. But anyway, this state will be absolutely terrible.

So the presentation which I have just made shows that it is highly probable that in the post-war world, *Homo sapiens* will not have an ecological niche. I mean that the environment will be so hostile to human beings that probably life in the very low-temperature areas will not be economically viable without fuel, without energy, with completely frozen water, without any water supply (because all fresh water will be in a frozen state), without a food supply and so on.

DR. PAUL EHRLICH, Bing Professor of Population Biology at Stanford University:

Let me say that I think the scientific results in this case are something that scientists normally call "robust". Dr. Sagan has given one reason for the robustness, namely, that the climatic effects have been checked in several different kinds of studies in several different laboratories.

Let me say they are robust in another way, particularly from the point of view of an ecologist, namely, they have been very conservative in many of their assumptions. They have been conservative in their assumptions about the size of firestorms, assuming that about 4 per cent of the land surface of North America would be burned off, when other estimates run over 50 per cent. They have been conservative in not including factors that they know about but which are hard to model, such as the fugitive dust, which would blow off from the denuded landscape. If you recall pictures of dust storms back in the Depression days, they are equally capable of making it midnight at noon and could continue to produce, along with long-term fires, some of these climatic effects for much longer ▶ times than have been cited.

Agricultural impact

In a spring or summer war, sub-freezing temperatures would kill or damage virtually all crops in the Northern Hemisphere. The low light levels would inhibit photosynthesis and the consequences would cascade through all food chains. Most farm animals would be destroyed or severely weakened by radiation. Those that survived would soon die of thirst since surface fresh water would be frozen in the interior of continents.

The forests

After a nuclear war, freshwater systems would freeze to considerable depths, killing off the food for woodland creatures. Radioactive fall-out would kill many conifers. Dead dry conifers would become kindling for massive forest fires.

▶ Some 70 biologists have reviewed the climatic results. In a meeting last April [1983], they were able to come to a unanimous conclusion about what these results mean, simply because built into them is a level of biological overkill such that there can be no disagreement. Asking ecologists and evolutionists to evaluate the biological impact of a nuclear winter was the equivalent of asking a group of distinguished physicians: "If everyone in this room put a loaded double-barrelled shotgun in his or her mouth and pulled both triggers simultaneously, what would be the medical results?"

The darkness alone, as Dr. Sagan mentioned, would be more than enough to cut off our ecological systems at their base because, as you know, we all depend on plants for our lives. In the oceans, the thermal inertia of the water would keep them relatively warm, but the plants that support the oceanic food chains (single-celled phytoplankton) have essentially no reserves and would die immediately. In temperate areas, all of the growing land plants would die. They would be killed not just by the dark, but also by the extraordinary cold. If the war occurred during the growing season, as it would be likely to do, many of the plants that in other seasons are able to take quite a bit of cold would be killed outright, because they would not have the chance to harden (increase their cold-resistance) as they normally do in the fall.

Basically, you have: the dark, which could be more than enough to destroy biological systems, at least in the northern hemisphere; and the cold, which also would be more than enough to destroy biological systems. Then there would be the extraordinary amounts of radiation—which were a surprise for the biologists—we had long known that there would be very serious radiation effects on human beings, but the new findings indicate they would be large enough to damage ecosystems—the toxic smog and the ultraviolet-B. Any one of those would be more than enough to put ecological systems into deep stress. Most of them would be enough, each by itself, to kill off that year's food production, anyway. And, in combination, there is an incredible level of overkill, so much that the biologists were able to conclude unanimously that, if there were a large-scale nuclear war triggering these kinds of climatic effects, in essence, you could kiss goodbye to the northern hemisphere. No civilization would survive in the northern hemisphere.

The only survival that there might be would be in extraordinarily deep shelters, with huge supplies of food, with self-contained air supplies and so on. And all those people, of course, would only be delaying their deaths, because when they came out, there would be nothing to come out to—a denuded, highly radioactive continent with no way to go back to agriculture to supply food, to supply any of the amenities of life.

If the effects spread to the southern hemisphere, then, of course, the biologists concluded, as Dr. Alexandrov has just indicated, that the extermination of human life could not be precluded, and under some circumstances, would be likely.

And let me stress that I have a long list of other ecological effects which I and others had identified long before, that have long been ignored, and that I am going to leave out today because of the overriding effects that we have just been discussing.

If a war below the threshold occurs and there is no full-scale nuclear winter, we would in no sense be out of the woods in terms of the long-term biological effects. For example, a smaller war, which set off fewer fires and put less dust in the atmosphere, could very easily depress the temperatures in the northern hemisphere by, say, 7° or 8°C. That would be enough to essentially cancel grain production for a year in the northern hemisphere. That in itself would be the greatest catastrophe ever delivered upon *Homo sapiens:* just that one thing, not worrying about the prompt effects. So that even below the threshold, one cannot think of survival of nuclear war as just being able to stand up after the bomb has gone off.

DR. ALEXANDER PAVLOV, Director of the Moscow Scientific Institute on Radiology:

Considering the after-effects of total nuclear war, it is necessary to take into account both immediate, direct effects, connected with the destructive factors of nuclear weapons, and remote, indirect influences on human health and life, due to the inevitable disastrous changes in the environment.

Today we are well aware of the destructive influences of such factors of nuclear weapons as shock wave, high temperature, radiation and contamination by radioactive nuclides.

I should like to note that after nuclear explosions, there will develop in different proportions combined lesions with different syndromes caused by mechanical traumas, thermal burns and radiation.

The World Health Organization holds that human losses in a total nuclear war would amount to more than one thousand million persons, with the same number of wounded. In total, about half of the world population would become a direct victim of nuclear war. The fate of another half of the world population will depend on harmful influences of radiological, climatic, socio-economic and other factors.

Speaking about immediate effects of nuclear-weapon use, it is necessary to dwell particularly on a new form of pathology—that is, the radiation lesions.

Today, numerous data have been collected, showing the biological action of radiation on living beings. These data open wide prospects for the use of radiation in medicine for the benefit of mankind. But radiation has another aspect. External or internal radiation of the total body causes a pathological condition, so-called radiation disease. The severity of radiation disease depends on the size of the absorbed dose and the volume of irradiated tissues. There exist various forms of that disease.

When high doses of radiation act on a human being, the clinical picture is characterized by changes in the central nervous system accompanied by stupor, which end with death in the next few hours, or days, after radiation.

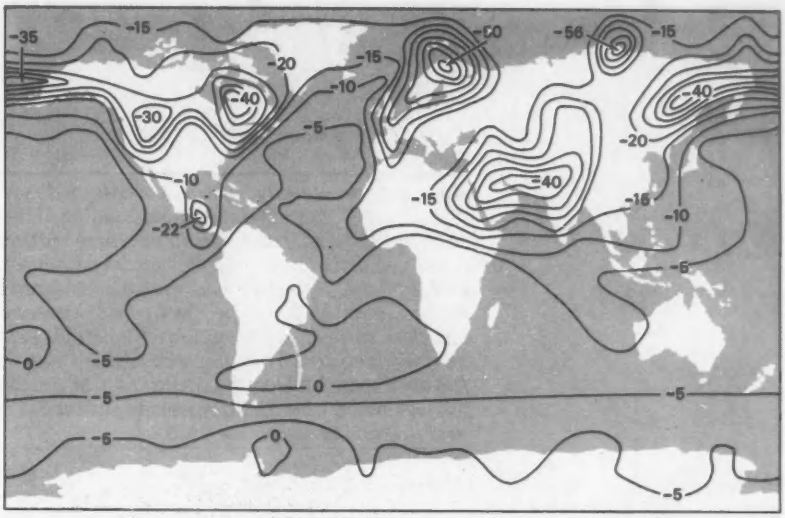
Radiation with lesser doses causes such clinical manifestations as gastrointestinal changes, with haemorrhagic diarrhoea or haemopoietic tissue, lesions with cytopenia, anaemia and immunological damages. Infectious complications such as stomatitis, pharyngitis, enterocolitis, pneumonia and others aggravate the state of patients even further. Very often, such conditions end with the death of the injured people.

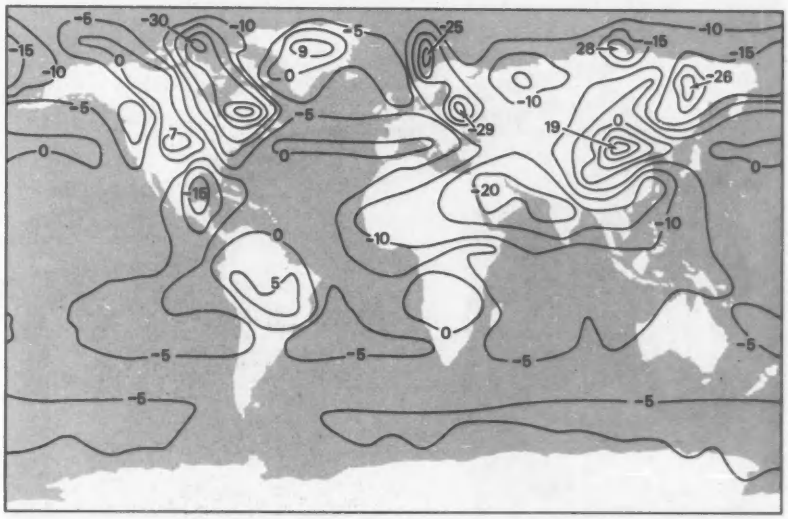
The long-term effect will depend on the particular environment. Human life cannot be thought of as separate from its environment. Therefore, all data on the ecological and climatic changes on the globe which will take place due to tremendous nuclear explosions are extremely important and decisive for the estimation of the remote consequences.

Worldwide effects

The cold and darkness following a nuclear war in the Northern Hemisphere would probably extend into the sub-tropics and tropics of both the Northern and Southern Hemispheres. These would cause large-scale injury to plants and animals there and would severely damage or destroy tropical rain forests, the great reservoir of Earth's organic diversity.

After 40 days





After 243 days

Maps © The Computing Centre of the USSR Academy of Sciences

Maps show changes in surface air temperatures 40 days (above) and 243 days (below) after the launching of a nuclear war in which 5,000 megatons are exploded, as calculated by the Computing Centre of the USSR Academy of Sciences. The lines are isotherms [an isotherm is a line connecting points of equal temperature] graded at intervals of 5 degrees. After 40 days there would be a drop in temperature of 30 to 40 degrees (Centigrade) over the USA and the USSR, 50 degrees over Scandinavia and Saudi Arabia, 22 degrees over Latin America and 20 degrees over Africa. After 243 days heating of the upper atmosphere will lead to rises in temperature over large mountain systems ranging from 5 to 6 degrees over the Andes to 20 degrees over Tibet, enough to provoke flooding on a continental scale.

Global atmospheric and climatic consequences of a nuclear war would have a destructive influence on the future existence of all living beings on Earth and, in the first place, on the human population. The abrupt decrease in air temperature and impermeation of the atmosphere by solar radiation would create extreme conditions for the existence of mankind.

Those houses that remained unruined would be inadequate for sheltering people. They would have to search for shelters underground. That fact would lead to overcrowding, to the impossibility of ensuring the simplest sanitary conditions, which would cause epidemics of such infectious diseases as classical typhus and enteric fever, cholera and viral diseases, etc.

The disappearance of forests, which are rightly regarded as the "lungs" of our planet, would lead to an abrupt decrease in the oxygen content of atmospheric air. That would have an extremely negative effect on the existence of living beings.

Low temperatures and a decrease in solar radiation would lead to the disappearance of vegetables and agricultural crops that would deprive mankind of the possibility of obtaining food products. Chronic starvation would lead also to immunity damage, that would facilitate the development of various infectious diseases.

The world's oceans and all other bodies of water would cease to be a source of goods. In connection with global effects, oceans would become a tomb for all animals and plants. That would deprive mankind of its last source of food. The water supply would be completely disrupted, with all that implies.

The human body has high possibilities of adaptation to various extreme conditions. Man is able to live for a long time on ice drifts, in Antarctica, to fly to space stations, to live in a blockaded town—for instance, during the Second World War, people lived in blockaded Leningrad for 900 days. But in all these cases, a certain hinterland exists, which supports the people. In the case of nuclear catastrophe, such a hinterland would not exist.

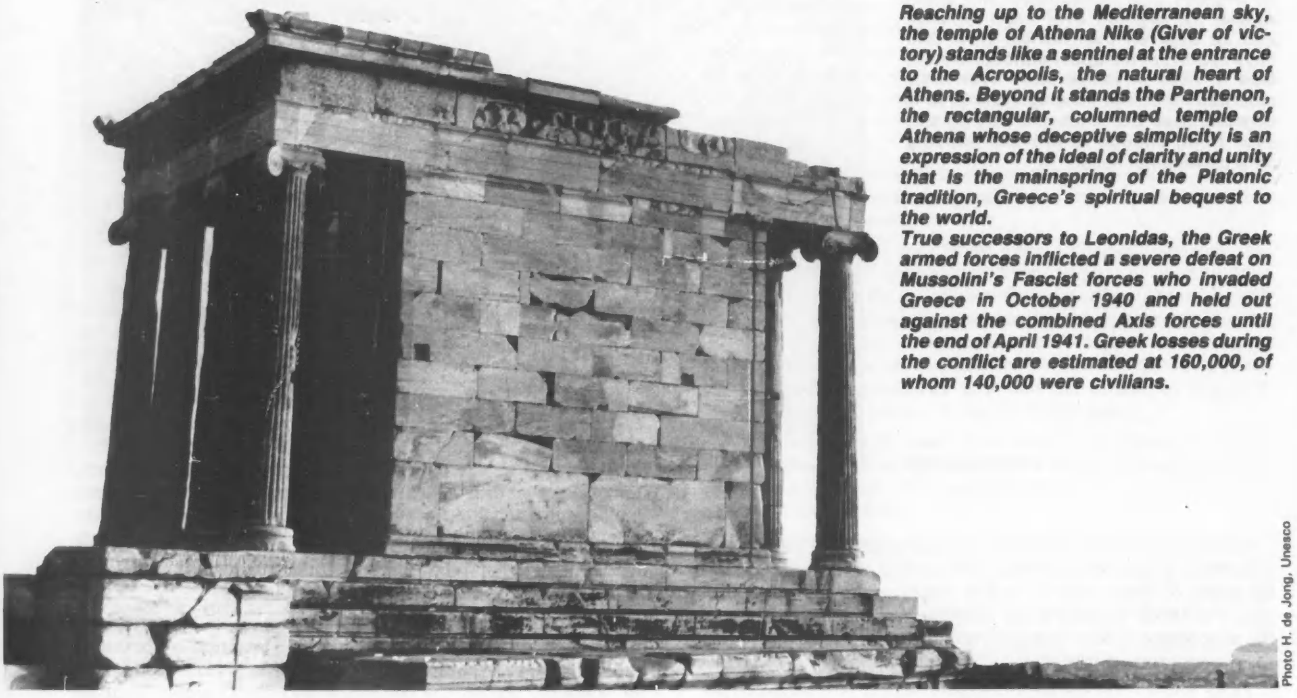
After a lapse of several years, from the moment of total nuclear war, an approximate recovery of the atmosphere and normalization of climatic conditions would be possible.

Restoration of the vital functions of living beings, capable of living in conditions of anabiosis, would be also possible. However, human beings would not be alive then. My short excursus as a doctor into the future after global nuclear war is naturally incomplete, because it seems to be difficult to enumerate all the factors which can arise within a complicated change of climatic, natural, ecological and socio-economic interaction.

Destructive effects of a nuclear catastrophe would certainly lead to the disappearance of human beings, that crowning point of evolution on Earth. ■

Unesco and peace research

An important objective of Unesco's Major Programme No. XIII, Peace, International Understanding, Human Rights and the Rights of Peoples, *is to encourage reflection on the factors contributing to peace by means of studies combining philosophical reflection and moral considerations and to clarify, in an historical perspective, the causes of conflicts and their various interpretations. The article below is based on a working document prepared by the Unesco Secretariat for an* Expert Meeting on Philosophical Research on Activities Linked with the Strengthening of the Spirit of Peace, *held in Paris in December 1980.*



Reaching up to the Mediterranean sky, the temple of Athena Nike (Giver of victory) stands like a sentinel at the entrance to the Acropolis, the natural heart of Athens. Beyond it stands the Parthenon, the rectangular, columned temple of Athena whose deceptive simplicity is an expression of the ideal of clarity and unity that is the mainspring of the Platonic tradition, Greece's spiritual bequest to the world.

True successors to Leonidas, the Greek armed forces inflicted a severe defeat on Mussolini's Fascist forces who invaded Greece in October 1940 and held out against the combined Axis forces until the end of April 1941. Greek losses during the conflict are estimated at 160,000, of whom 140,000 were civilians.

Photo H. de Jong, Unesco

THERE is an urgent need to elaborate a generally acceptable modern philosophical framework on which to base activities aimed at strengthening peace; this would include an epistemology of the investigation of peace/war phenomena, a distillation of the philosophical essence of what constitutes a stable peace, and the ethical foundations of peaceful relations in all domains.

The lack of a general epistemology tends to weaken many well-intentioned attempts at peace research. A number of recent attempts to explain the peace/war phenomenon have exhibited a common methodological weakness—oversimplification. Oversimplified models of analytical abstractions have, for example, been constructed in the hope of throwing new light on complex, little-understood phenomena by comparing them with other, simpler and better-known phenomena. The descriptive accuracy of such models is doubtful, their capacity to provide valid explanations of phenomena is restricted, and they are only of limited use in practical applications and in forecasting.

In order to clarify the theoretical bases of modern peace research it is necessary to analyse its phraseology and terminology, sometimes borrowed from other disciplines and often ambiguous. At the 26th session of the United Nations General Assembly, for instance, it was suggested that "polemological barometers" should be established—a metaphor designating mechanisms capable of predicting local conflicts that could threaten peace.

Subsequently, the metaphor was carried further when it was proposed that an attempt should be made to detect "fronts of collective aggressivity", analogous to the meteorologists' "weather fronts"; computers were thought to be the best instruments for establishing these "barometers" and detecting these "fronts". Thus an elaborate meteorological metaphor for the peace/war phenomenon was built up.

We should not denigrate all the work accomplished in the elaboration of computerized "polemological barometers", but the dangers involved in the use of such metaphors and the extrapolation of

methods from one field of research to another, from a natural science to a social science, should also be borne in mind.

Less popular has been the "medical" model which assimilates peace and war to good health and sickness in the human body. Inventors of this model themselves point out that "whereas the human body clearly fits the idea of a 'natural system', including the processes of self-maintenance and aging, we have some difficulties in conceptualizing the international system in a similar manner".

Nevertheless, Norwegian theorist Johan Galtung, explaining a distinction between *negative peace* (defined as the absence of war) and *positive peace* (presence of patterns of co-operation), supposes that it runs parallel to a distinction between negative and positive health in the medical sciences and the "health" of the international system may depend to a certain extent on the "health" of its parts, i.e. nations.

"Meteorological" and "medical" conceptions of peace/war patterns are, of course, clearly recognized by peace research students as preliminary metaphors rather than as fully elaborated models. But in the field of peace research there are also models whose metaphorical character is not so obvious. Among these are psychological Freudian and behaviourist models, anthropological models, ethological models, and so on.

Every attempt at modelling bears in itself the danger of reductionism, of artificial oversimplification of the object of research. But when the theoretical approach is derived from the natural sciences (such as medicine or meteorology) and extrapolated to the social sciences, the danger is increased. Modelling based on a comparison of conflicts between primitive tribes and modern conflicts between States (i.e. wars), being within the social sciences, may very well display external and immaterial similarities. It can be presumed that conflicts in societies with different social structures will present some differences as well as similarities, since the social nature of conflicts as well as their degree of complexity are variable. They cannot be considered merely as simple ancient and complicated modern forms of the same phenomenon.

The need for peace research to develop its own paradigm, or exemplary model, is evident and, in fact, several such paradigms exist. A well known one is the theoretical Marxist structural explanation of the cause of war which presumes private ownership of the means of production, exploitation of populations by the minority possessing classes and an antagonistic class stratification of society to be the principal ground of external aggression and war, perpetual peace being an ideal of a future world socialist community free from every kind of exploitation. There are many modern modifications of this scheme, using different phraseologies but similar in their content.

Of course, the Marxist account of war and peace has also been criticized.

From the philosophical point of view, for instance, a fundamental criticism is sometimes made. Although the Marxist approach to an explanation of war and peace does not rely on an explicit metaphor or model, it is, nevertheless, reductionist in that it attempts to explain tensions and hostilities between sovereign States in terms of conflicts of another kind within the separate States.

The history of social science is strewn with the relics of unsuccessful reductionisms; and this is why adoption of an interdisciplinary "systems" approach to the phenomena of war and peace is thought to hold some promise for the future. Nor should we forget the positive models elaborated since 1966 within the framework of the *World Order Models Project* (WOMP) and which reached a high level of conceptual design.

Another philosophical problem that it is difficult to avoid is that of the status of "laws" governing the development of society. The debate has been a familiar one at least since the publication of Sir Karl Popper's *Poverty of Historicism*, but it remains as relevant today as it was a quarter of a century ago.

To what extent are the "laws" of social development that we have discovered so far, or that we can expect to discover, similar to the laws of the natural sciences? In what respects are they different? For example, it is argued that whilst the laws of nature cannot be changed by man, who ▶

Photo Burt Glinn © Magnum, Paris

A prayer for peace. Monks in meditation against the backdrop of the snow-capped summit of Fujiyama, the sacred mountain of Japan.

Photo H. de Jong, Unesco

This drawing by Aurore Dillon (aged 4 1/2) won a prize in a children's art contest held during a "Two days with Unesco" event organized in June 1984 on the initiative of the cultural centre of Lucy-sur-Yonne (France) under the auspices of the Unesco Courier. The theme of the contest was: "Getting to know each other—the way to community and better mutual understanding." Other award-winners were: Sandrine Martin (aged 7), Raphael Gomez (aged 10), Séverine Déjardin (aged 12), André Beauvallet (aged 14), Patrick Beauvallet, Fabrice Fougeron and Florence Godin (aged 16). A large number of local schools took part in the event.

▶ can only adapt himself to them and use his knowledge of their peculiarities in his activities, the laws of society, according to Marxist belief, can be changed by human activity to the benefit of mankind.

Is the establishment of perpetual peace possible today? We know that throughout history there has always been more war than peace. Is this because of the existence of specific laws governing society and human behaviour that make war inevitable or even, as some thinkers have suggested, indispensable? If such laws exist, are they absolute like the laws of nature? Or can they, like other laws governing society, be changed? Can their effects be tempered or in some way channelled?

Thus peace research has already provided us with a number of theories, elements of theories, models and metaphors for the analysis of war and peace; but a number of deep philosophical questions arise with an insistence that makes it difficult for us to ignore them.

Peace research is an interdisciplinary field of great complexity. Attention must be directed to the "dialectic of peace", in the sense of the complex interrelationships between the peace/war dimension on the one hand, and, on the other, the dimensions of human rights, development within nations, equity between nations on both the political and economic levels, and the existence and recognition of cultural diversity. Each of these dimensions in turn involves an ethical aspect and discussion of peace/war problems offers an opportunity to test and refine the principal theories of ethics that philosophy has developed over the course of its history, whether they be rationalistic, intuitionistic, utilitarian, or of any other type.

The view of Kant, for example, immediately comes to mind: a reasonable being must act only according to maxims which may constitute a system of laws. According to Kant, who also outlined the idea of perpetual peace, rational behaviour must be based on a clear, developed system of coherent ethics, embodied in laws and rules.

The notion of such a system underlies proposals for a *New International Order*. A fully thought out philosophy, above all an ethical philosophy, of a New International Order is needed, and this philosophy has to form the basis of the modern concept of peace. An understanding of the fundamental concepts of the great theories of ethics is of the utmost importance to an appreciation of the values implicit in the peace/war dialectic; and the practicalities of the problems faced by the world today in peace and war can, if carefully examined and reflected upon, help to enrich the ethical theories of philosophy itself. ■

Editorial, Sales and Distribution Offices:
Unesco, 7, Place de Fontenoy, 75700 Paris
Subscription rates
1 year: 68 French francs. 2 years (valid only in France): 120 French francs. Binder for a year's issues: 52 FF

The **UNESCO COURIER** is published monthly.
Individual articles and photographs not copyrighted may be reprinted providing the credit line reads "Reprinted from the **UNESCO COURIER**", plus date of issue, and three voucher copies are sent to the editor. Signed articles reprinted must bear author's name. Non-copyright photos will be supplied on request. Unsolicited manuscripts cannot be returned unless accompanied by an international reply coupon covering postage. Signed articles express the opinions of the authors and do not necessarily represent the opinions of UNESCO or those of the editors of the **UNESCO COURIER**. Photo captions and headlines are written by the Unesco Courier staff. The boundaries on maps published in the magazine do not imply official endorsement or acceptance by Unesco or the United Nations.

The Unesco Courier is produced in microform (microfilm and/or microfiche) by: (1) Unesco, 7 Place de Fontenoy, 75700 Paris ; (2) University Microfilms (Xerox), Ann Arbor, Michigan 48100, U.S.A.; (3) N.C.R. Microcard Edition, Indian Head, Inc., 111 West 40th Street, New York, U.S.A.; (4) Bell and Howell Co., Old Mansfield Road, Wooster, Ohio 44691, U.S.A.

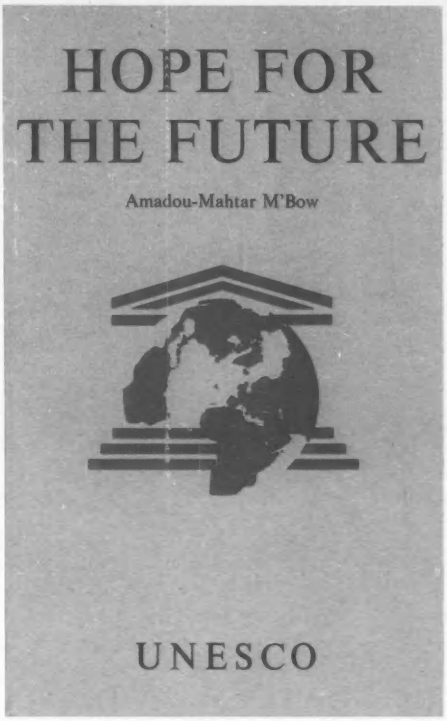
Assistant Editor-in-chief: Olga Rödel
Managing Editor: Gillian Whitcomb

Editors:
English: Howard Brabyn (Paris)
Roy Malkin
French: Alain Lévêque (Paris)
Neda el Khazen
Spanish: Francisco Fernandez-Santos (Paris)
Jorge Enrique Adoum
Russian: Nikolai Kuznetsov (Paris)
Arabic: Sayed Osman (Paris)
German: Werner Merkli (Berne)
Japanese: Seiichiro Kojima (Tokyo)
Italian: Mario Guidotti (Rome)
Hindi: Rajmani Tiwari (Delhi)
Tamil: M. Mohammed Mustafa (Madras)
Hebrew: Alexander Broido (Tel Aviv)
Persian: Hossein Razmdjou (Teheran)
Dutch: Paul Morren (Antwerp)
Portuguese: Benedicto Silva (Rio de Janeiro)
Turkish: Mefra Ilgazer (Istambul)
Urdu: Hakim Mohammed Said (Karachi)
Catalan: Joan Carreras i Marti (Barcelona)
Malaysian: Azizah Hamzah (Kuala Lumpur)
Korean: Paik Syeung-Gil (Seoul)
Swahili: Domino Rutayebesibwa (Dar-es-Salam)
Croato-Serb, Macedonian, Serbo-Croat, Slovene: Vitomir Sudarski (Belgrade)
Chinese: Shen Guofen (Pekin)
Bulgarian: Goran Gotev (Sofia)
Greek: Nicolas Papageorgiou (Athens)
Sinhala: S.J. Sumanasekera Banda (Colombo)
Finnish: Marjatta Oksanen (Helsinki)
Swedish: Inger Raaby (Stockholm)
Basque: Gurutz Larrañaga (San Sebastian)
Braille: Frederick Potter (Paris)

Research: Christiane Boucher
Illustrations: Ariane Bailey
Layout and Design: Georges Servat
Promotion: Fernando Ainsa
Special projects: Peggy Julien

All correspondence should be addressed to the Editor-in-Chief in Paris.

BRODARD GRAPHIQUE. COULOMMIERS - Dépôt légal C 1 - Mai 1985 - IMPRIMÉ EN FRANCE (Printed in France)
PHOTOCOMPOSITION CHRISTIAN PAGNOUD - 6/8, rue des Épinettes - 75017 PARIS - PHOTOGRAVURE DAWANT - 13, rue des Arquebusiers - 75003 PARIS.



A companion volume to *Where the future begins*, this collection of the addresses of Unesco's Director-General to the General Conference at its 1982 and 1983 sessions indicates many ways by which the diversity of needs, aims and hopes of the international community may be forged into a new concerted effort.

ISBN 92-3-102221-0 217 pp. 30 French francs

Where to renew your subscription

and place your order for other Unesco publications

Order from any bookseller or write direct to the National Distributor in your country. (See list below; names of distributors in countries not listed, along with subscription rates in local currency, will be supplied on request.)

AUSTRALIA. Hunter Publications, 58A Gipps Street, Collingwood Victoria 3066; Publications: Educational Supplies Pty. Ltd. P.O. Box 33, Brookvale, 2100, NSW. Periodicals: Dominie Pty. Subscriptions Dept., P.O. Box 33, Brookvale 2100, NSW. Sub-agent: United Nations Association of Australia, P.O. Box 175, 5th floor, Ana House, 28 Elizabeth Street, Melbourne Victoria 3000. **AUSTRIA.** Buchhandlung Gerold and Co., Graben 31, A-1011, Vienna. **BAHAMAS.** Nassau Stationers Ltd., P.O. Box N-3138, Nassau. **BANGLADESH.** Bangladesh Books International Ltd., Ittefaq Building, 1, R.K. Mission Rd., Hatkhola, Dacca 3. – **BARBADOS.** University of the West Indies Bookshop, Cave Hill Campus, P.O. Box 64, Bridgetown. **BELGIUM.** "Unesco Courier" Dutch edition only: N.V. Handelmaatschappij Keesing. Keesinglaan 2-18, 2100 Deurne-Antwerpen. French edition and general Unesco publications agent: Jean de Lannoy, 202, avenue du Roi, 1060 Brussels, CCP 000-0070823-13. **BOTSWANA.** Botswana Book Centre, P.O. Box 91, Gaborone. **BURMA.** Trade Corporation No. 9, 550-552 Merchant Street, Rangoon. **CANADA.** Renouf Publishing Co. Ltd., 2182 St. Catherine Street West, Montreal, Que. H3H 1M7. **CHINA.** China National Publications Import and Export Corporation, P.O. Box 88, Beijing. **CYPRUS.** "MAM", Archbishop Makarios 3rd Avenue, P.O. Box 1722, Nicosia. **CZECHOSLOVAKIA.** – S.N.T.L., Spalena 51-113 02, Prague 1; Ve Smeckach 30, P.O.B. 790 - 111 - 27 Prague 1 (Permanent display); Zahranicni literatura, 11 Soukenicka, Prague 1. For Slovakia only: Alfa Verlag. – Publishers, Hurbanovo nam. 6,893 31 Bratislava – CSSR. **DENMARK.** Munksgaard Export-OG Tidsskriftservice 35 Norre Sogade, DK-1970 Kobenhavn K. **EGYPT (ARAB REPUBLIC OF).** National Centre for Unesco Publications, No. 1 Talaat Harb Street, Cairo. **ETHIOPIA.** National Agency for Unesco, P.O. Box 2996, Addis Ababa. **FINLAND.** Akateeminen Kirjakauppa, Keskuskatu 1, SF-00100 Helsinki 10; Suomalainen Kirjakauppa Oy, Koivuvaarankuja 2, 01640 Vantaa 64. **FRANCE.** Librairie de l'Unesco, 7, place de Fontenoy, 75700 Paris, C.C.P. 12598-48. **GERMAN DEMOCRATIC REP.** Buchhaus Leipzig, Postfach 140, 710 Leipzig or from Internationalen Buchhandlungen in the G.D.R. **FED. REP. OF GERMANY.** For the Unesco Courier (German, English, French and Spanish editions): Mr. H. Baum, Deutscher Unesco-Kurier Vertrieb, Basalstrasse 57, D 5300 Bonn 3. For other Unesco publications: Karger Verlag, Germering/München. For scientific maps only: Geo Center, Postfach 800830, Stuttgart 80. **GHANA.** Presbyterian Bookshop Depot Ltd., P.O. Box 195, Accra; Ghana Book Suppliers Ltd., P.O. Box 7869, Accra; The University Bookshop of Ghana, Accra; The University Bookshop of Cape Coast; The University Bookshop of Legon, P.O. Box 1, Legon. **GREAT BRITAIN.** See United Kingdom. **HONG KONG.** Federal Publications (HK) Ltd., 5A Evergreen Industrial Mansion, 12 Yip Fat Street, Aberdeen. Swindon Book Co., 13-15, Lock Road, Kowloon. Hong Kong Government Information Services, Publication Centre, Baskerville House, 22 Ice Street. **HUNGARY.** Kultura-Bushimport - ABT, P.O.B. 149 - H-1389, Budapest 62. **ICELAND.** Snaebjörn Jonsson & Co., H.F., Hafnarstraeti 9, Reykjavik. **INDIA.** Orient Longman Ltd., Kamani Marg, Ballard Estate, Bombay 400038; 17 Chittaranjan Avenue, Calcutta 13; 36a, Anna Salai, Mount Road, Madras 2; 5-9-41/1 Bashir Bagh, Hyderabad 500001 (AP); 80/1 Mahatma Gandhi Road, Bangalore-560001; 3-5-820 Hyderguda, Hyderabad-500001. Sub-Depots: Oxford Book & Stationery Co. 17 Park Street, Calcutta 70016; Scindia House, New Delhi; Publication Unit, Ministry of Education and Culture, Ex. AFO Hutments, Dr. Rajendra Prasad Road, New Delhi 110001. **INDONESIA.** Bhratara Publishers and Booksellers, 29 Jl. Oto Iskandardinata III, Jakarta; Indira P.T., Jl Dr Sam Ratulangie 37, Jakarta Pusat. **IRAN.** Kharazmie Publishing and Distribution Co., 28, Vessal Shirazi Street, Enghélab Avenue, P.O. Box 314/1486, Teheran; Iranian Nat. Comm. for Unesco. 1188 Enghlab Av., Rostam Give Building, Zip Code 13158, P.O. Box 11365-4498, Teheran. **IRAQ.** McKenzie's Bookshop, Al Rashid Street, Baghdad. **IRELAND.** The Educational Company of Ireland Ltd, Ballymount Road, Walkinstown, Dublin 12. **ISRAEL.** A.B.C. Bookstore Ltd., P.O. Box 1283, 71 Allenby Road, Tel Aviv 61000. **ITALY.** Licosa (Libreria Commissionaria Sansoni, S.p.A.) Via Lamarmora 45, Casella Postale 552, 50121 Florence. **JAMAICA.** Sangster's Book Stores Ltd., P.O. Box 366, 101 Water Lane, Kingston. University of the West Indies Bookshop, Mona, Kingston. **JAPAN.** Eastern Book Service Inc., 37-3 Hongo 3-chome Bunkyo-ku Tokyo 113. **KENYA.** East African Publishing House, P.O. Box 30571, Nairobi; Africa Book Services Ltd., Quran House, Mfangano Street, P.O. Box 45245, Nairobi. **KOREA.** Korean National Commission for Unesco, P.O. Box Central 64, Seoul. **KUWAIT.** The Kuwait Bookshop Co., Ltd, POB 2942, Kuwait; for the Unesco Courier; Farafalla Press Agency, P.O. Box SAFA 4541, Kuwait. **LESOTHO.** Mazenod Book Centre, P.O. Mazenod, Lesotho, Southern Africa. **LIBERIA.** Cole and Yancy Bookshops Ltd., P.O. Box 286, Monrovia. **LIECHTENSTEIN :** Eurocan Trust Reg. P.O.B. 5 - 9494 Schaan. **LIBYA.** Agency for Development of Publication & Distribution, P.O. Box 34-35, Tripoli. **LUXEMBOURG.** Librairie Paul Bruck, 22, Grande-Rue, Luxembourg. **MALAWI.** Malawi Book Service, Head Office, P.O. Box 30044 Chichiri, Blantyre 3. **MALAYSIA.** University of Malaya Cooperative Bookshop, Kuala Lumpur 22-11. **MALTA.** Sapienzas, 26 Republic Street, Valletta. **MAURITIUS.** Nalanda Company Ltd., 30, Bourbon Street, Port-Louis. **MONACO.** British Library, 30 bd. des Moulins, Monte-Carlo. **NEPAL.** Sajha Prakashan Polchowk, Kathmandu. **NETHERLANDS.** KEESING BOEKEN B.V., Joan Muyskenweg, 22, Postbus 1118, 1000 BC Amsterdam. **NETHERLANDS ANTILLES.** Van Dorp-Eddine N.V., P.O. Box 200, Willemstad, Curaçao. N.A. **NEW ZEALAND.** Government Printing Office, Government Bookshops at: Rutland Street, P.O. Box 5344, Auckland; 130, Oxford Terrace. P.O. Box 1721 Christchurch; Alma Street, P.O. Box 857 Hamilton; Princes Street, P.O. Box 1104, Dunedin, Mulgrave Street, Privasa Bag, Wellington. **NIGERIA.** The University Bookshop of Ife; The University Bookshop of Ibadan, P.O. 286; The University Bookshop of Nsukka; The University Bookshop of Lagos; The Ahmadu Bello University Bookshop of Zaria. **NORWAY.** Johan Grundt Tanum, P.O.B. 1177 Sentrum - Oslo 1, Narvesen A/S; Subscription and Trade Book Service. P.O.B. 6125 Etterstad, Oslo 6; Universitets Bokhandelen, Universitetssentret, Postboks 307 Blindern, Oslo 3. **PAKISTAN.** Mirza Book Agency, 65 Shahrah Quaid-i-azam, P.O. Box No. 729, Lahore 3; Unesco Publications Centre, Regional Office for Book development in Asia and the Pacific, 39 Delhi Housing Society, P.O. Box 8950, Karachi 29. **PHILIPPINES.** National Book Store, Inc. 701, Rizal Avenue, Manila D-404. **POLAND.** Orpan-Import, Palac Kultury I Nauki, Warsaw; Ars Polona-Ruch, Krakowskie Przedmiescie No. 7.00-068 WARSAW. **PORTUGAL.** Dias & Andrade Ltda. Livraria Portugal, rua do Carmo 70, Lisbon. **SEYCHELLES.** National Bookshop, P.O. Box 48, Mahé; New Service Ltd., Kingsgate House, P.O. Box 131, Mahé. **SIERRA LEONE.** Fourah Bay, Njala University and Sierra Leone Diocesan Bookshops, Freetown. **SINGAPORE.** Federal Publications (S) Pte Ltd. Times Jurong, 2 Jurong Port Road, Singapore 2261. **SOMALI DEMOCRATIC REPUBLIC.** Modern Book Shop and General, P.O. Box 951, Mogadiscio. **SOUTH AFRICA.** For the Unesco Courier (single copies) only: Central News agency, P.O. Box 1033, Johannesburg. **SRI LANKA.** Lake House Bookshop, 100 Sir Chittampalam Gardiner Mawata P.O.B. 244 Colombo 2. **SUDAN.** Al Bashir Bookshop, P.O. Box 1118, Khartoum. **SWEDEN.** All publications A/B.C.E. Fritzes Kungl. Hovbokhandel, Regeringsgatan 12, Box 16356. 10327 Stockholm 16. For the Unesco Courier: Svenska FN Förbundet, Skolgrand 2, Box 150 50 S- 104 65, Stockholm; Wennergren-Williams, Box 30004-S-104, 25 Stockholm; Esselte Tidskriftscentralen, Gamla Brogatan 26, Box 62 - 101 20 Stockholm. **SWITZERLAND.** All publications: Europa Verlag. 5 Rämistrasse. Zurich. Librairie Payot, rue Grenus 6, 1211, Geneva 11, C.C.P. 12-236. Libraries Payot also in Lausanne, Basle, Berne, Vevey, Montreux, Neuchâtel and Zurich. **TANZANIA.** Dares Salaam Bookshop, P.O.B. 9030 Dar-es-Salaam. **THAILAND.** Nibondh and Co. Ltd., 40-42 Charoen Krung Road, Siyaeg Phaya Sri, P.O. Box 402; Bangkok: Suksapan Panit, Mansion 9, Rajdamnern Avenue, Bangkok; Suksit Siam Company, 1715 Rama IV Road, Bangkok. **TRINIDAD AND TOBAGO.** National Commission for Unesco, 18 Alexandra Street, St. Clair, Trinidad, W.I. **TURKEY.** Hasat Kitapevi A.S., Istiklal Caddesi, N° 469, Posta Kutusu 219, Beyoglu, Istambul. **UGANDA.** Uganda Bookshop, P.O. Box 7145, Kampala. **UNITED KINGDOM.** H.M. Stationery Office, H.M.S.O., P.O. Box 276, London, SW8 5DT, and Govt. Bookshops in London. Edinburgh, Belfast, Manchester, Birmingham, Bristol; for scientific maps only: McCarta Ltd., 122 King's Cross Road, London WC 1X 9 DS. **UNITED STATES.** Unipub, 205 East 42nd Street, New York, N.Y. 10017. Orders for books & Periodicals: P.O. Box 1222, Ann Arbor, MI 48106. **U.S.S.R.** Mezhdunarodnaya Kniga, Moscow, 121200. **YEMEN.** 14th October Corporation, P.O. Box 4227, Aden. **YUGOSLAVIA.** Mladost, Ilica 30/11, Zagreb; Cankarjeva Zalozba, Zopitarjeva 2, Ljubljana; Nolit, Terazije 27/11, Belgrade. **ZAMBIA.** National Educational Distribution Co. of Zambia Ltd., P.O. Box 2664 Lusaka. **ZIMBABWE.** Textbook Sales (PVT) Ltd., 67 Union Avenue, Harare.

'... since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed.'

Extract from the Preamble to Unesco's Constitution adopted in London on 16 November 1945

Right, calligraphy of this extract in French: Georges Servat, *Unesco Courier*